

# 50. METEOROLOGY

# 50.01. THE ATMOSPHERE

## 50.01.01. Composition, extent, vertical division

### 50.01.01.01. Composition, extent, vertical division

1 id 120	How does the height of the tropopause normally vary with latitude in the northern hemisphere ?
<ul style="list-style-type: none"><li>a It remains constant throughout the year.</li><li>b It remains constant from north to south.</li><li>c It increases from south to north.</li><li><b>d It decreases from south to north.</b></li></ul>	
2 id 121	What, approximately, is the average height of the tropopause over the equator ?
<ul style="list-style-type: none"><li>a 40 km</li><li>b 8 km</li><li>c 11 km</li><li><b>d 16 km</b></li></ul>	
3 id 122	In which layer is most of the atmospheric humidity concentrated ?
<ul style="list-style-type: none"><li><b>a Troposphere.</b></li><li>b Tropopause.</li><li>c Stratosphere.</li><li>d Stratopause.</li></ul>	
4 id 1157	What is the boundary layer between troposphere and stratosphere called?
<ul style="list-style-type: none"><li><b>a Tropopause.</b></li><li>b Ionosphere.</li><li>c Stratosphere.</li><li>d Atmosphere.</li></ul>	
5 id 1495	Which of the following cloud types can project up into the stratosphere?
<ul style="list-style-type: none"><li><b>a Cumulonimbus</b></li><li>b Cirrostratus</li><li>c Altocumulus</li><li>d Altostratus</li></ul>	
6 id 1496	Which one of the following statements applies to the tropopause?
<ul style="list-style-type: none"><li>a It is, by definition, a temperature inversion</li><li>b It is, by definition, an isothermal layer</li><li>c It indicates a strong temperature lapse rate</li><li><b>d It separates the troposphere from the stratosphere</b></li></ul>	

<b>7</b> id 2069	The thickness of the troposphere varies with
<b>a latitude</b>	
<b>b longitude</b>	
<b>c rotation of the earth</b>	
<b>d the wind</b>	
<b>8</b> id 2088	What is the approximate composition of the dry air by volume in the troposphere ?
<b>a 21 % oxygen, 78 % nitrogen, and the rest other gasses</b>	
<b>b 10 % oxygen, 89 % nitrogen, and the rest other gasses</b>	
<b>c 88 % oxygen, 9 % nitrogen, and the rest other gasses</b>	
<b>d 50 % oxygen, 40 % nitrogen, and the rest other gasses</b>	
<b>9</b> id 2381	Which layer of the atmosphere contains more than 90 per cent of all water vapour?
<b>a Troposphere</b>	
<b>b Lower stratosphere</b>	
<b>c Upper stratosphere</b>	
<b>d Ionosphere</b>	
<b>10</b> id 2560	Going from the equator to the north pole, the altitude of the tropopause
<b>a increases and its temperature increases</b>	
<b>b decreases and its temperature increases</b>	
<b>c increases and its temperature decreases</b>	
<b>d decreases and its temperature decreases</b>	
<b>11</b> id 3592	The troposphere is the
<b>a part of the atmosphere above the stratosphere</b>	
<b>b part of the atmosphere below the tropopause</b>	
<b>c boundary between the mesosphere and thermosphere</b>	
<b>d boundary between the stratosphere and the mesosphere</b>	
<b>12</b> id 3593	The tropopause is a level at which
<b>a vertical currents are strongest</b>	
<b>b water vapour content is greatest</b>	
<b>c pressure remains constant</b>	
<b>d temperature ceases to fall with increasing height</b>	
<b>13</b> id 3594	The tropopause is lower
<b>a south of the equator than north of it</b>	
<b>b in summer than winter in moderate latitudes</b>	
<b>c over the North Pole than over the equator</b>	
<b>d over the equator than over the South Pole</b>	

<b>14</b> id 3598	The average height of the tropopause at 50°N is about
<b>a</b>	14 km
<b>b</b>	8 km
<b>c</b>	<b>11 km</b>
<b>d</b>	16 km
<b>15</b> id 3599	The height and the temperature of the tropopause are respectively in the order of
<b>a</b>	8 km and -40°C over the equator
<b>b</b>	<b>16 km and -75°C over the equator</b>
<b>c</b>	8 km and - 75°C over the poles
<b>d</b>	16 km and -40°C over the poles
<b>16</b> id 4164	The troposphere
<b>a</b>	<b>has a greater vertical extent above the equator than above the poles</b>
<b>b</b>	contains all oxygen of the stratosphere
<b>c</b>	is the separation layer between the stratosphere and atmosphere
<b>d</b>	reaches the same height at all latitudes
<b>17</b> id 5556	In the mid-latitudes the stratosphere extends on an average from
<b>a</b>	85 to more than 200 km
<b>b</b>	0 to 11 km
<b>c</b>	50 to 85 km
<b>d</b>	<b>11 to 50 km</b>
<b>18</b> id 6406	A temperature increase with altitude through a layer is called:
<b>a</b>	Heating aloft.
<b>b</b>	<b>An inversion.</b>
<b>c</b>	An extension.
<b>d</b>	Unstable air.
<b>19</b> id 6457	The layer of the Earth's atmosphere which most concerns aviators is called the:
<b>a</b>	Stratosphere.
<b>b</b>	Tropopause.
<b>c</b>	<b>Troposphere.</b>
<b>d</b>	Equatorial zone.
<b>20</b> id 6462	The percentage concentration of gases in the atmosphere is constant from the surface of the earth to a certain altitude with the exception of:
<b>a</b>	Oxygen
<b>b</b>	Nitrogen
<b>c</b>	Hydrogen
<b>d</b>	<b>Water vapour</b>

<b>21</b> id 6536	Define the tropopause:
	<p>a A relatively thin layer, or boundary zone, which separates the lower atmosphere from the tropopause</p> <p><b>b That area where the temperature change does not exceed two-thirds of one degree Celsius per thousand foot increase in altitude over a range of 6000 feet.</b></p> <p>c That area where the temperature change does not exceed two-thirds of one degree Celsius per thousand foot increase in altitude independent of latitude.</p> <p>d A relatively thick layer or boundary zone below the troposphere.</p>
<b>22</b> id 6559	The region of the atmosphere which is normally stable and has few clouds is known as the:
	<p>a Tropopause</p> <p>b Troposphere</p> <p><b>c Stratosphere</b></p> <p>d Jetstream</p>
<b>23</b> id 6572	The lowest layer in the atmosphere is:
	<p>a The Stratosphere</p> <p><b>b The Troposphere</b></p> <p>c The Mesosphere</p> <p>d The Heavi Side Layer</p>
<b>24</b> id 6645	The layer of the atmosphere above the tropopause is known as the:
	<p>a Troposphere</p> <p><b>b Stratosphere</b></p> <p>c Mesosphere</p> <p>d</p>
<b>25</b> id 6648	What is the primary cause of all changes in the Earth's weather?
	<p><b>a Variation of solar energy at the Earth's surface</b></p> <p>b Changes in air pressure over the Earth's surface</p> <p>c Movement of air masses from moist areas to dry areas</p> <p>d</p>
<b>26</b> id 6655	What is a characteristic of the troposphere?
	<p>a It contains all the moisture of the atmosphere</p> <p><b>b There is an overall decrease of temperature with an increase of altitude</b></p> <p>c The average altitude of the top of the troposphere is about 8 kilometres</p> <p>d</p>
<b>27</b> id 6656	What weather feature occurs at altitude levels near the tropopause?
	<p><b>a Maximum winds and narrow wind shear zones</b></p> <p>b Abrupt temperature increase above the tropopause</p> <p>c Thin layers of cirrus clouds at the tropopause level</p> <p>d</p>

<b>28</b> id 6657	Which feature is associated with the tropopause?
	<ul style="list-style-type: none"> <li>a Absence of wind and turbulence</li> <li>b Absolute upper limit of cloud formation</li> <li><b>c Abrupt change of temperature lapse rate</b></li> <li>d</li> </ul>
<b>29</b> id 6679	The boundary layer between troposphere and stratosphere is called
	<ul style="list-style-type: none"> <li>a Ionosphere</li> <li><b>b Tropopause</b></li> <li>c Stratopause</li> <li>d Atmosphere</li> </ul>
<b>30</b> id 6717	What is the average temperature of the tropical tropopause?
	<ul style="list-style-type: none"> <li><b>a -75°C</b></li> <li>b -65°C</li> <li>c -56,5°C</li> <li>d -40°C</li> </ul>
<b>31</b> id 6722	Which statement is true concerning the tropopause from the equator to the poles?
	<ul style="list-style-type: none"> <li><b>a The tropopause decreases, the tropopause temperature increases</b></li> <li>b The tropopause decreases, the tropopause temperature decreases</li> <li>c The tropopause increases, the tropopause temperature increases</li> <li>d The tropopause increases, the tropopause temperature decreases</li> </ul>
<b>32</b> id 6738	Which layer of the atmosphere contains more than 90 % of the total amount of water vapour?
	<ul style="list-style-type: none"> <li><b>a Troposphere</b></li> <li>b Lower stratosphere</li> <li>c Higher stratosphere</li> <li>d Ionosphere</li> </ul>
<b>33</b> id 6755	What can be said about the temperature in the lower stratosphere?
	<ul style="list-style-type: none"> <li><b>a The temperature is constant</b></li> <li>b The temperature is increasing</li> <li>c The temperature is decreasing</li> <li>d The temperature is first increasing and then decreasing</li> </ul>

## 50.01.02. Temperature

### 50.01.02.01. Vertical distribution of temperature

<b>34</b> id 138	At a certain position, the temperature on the 300 hPa chart is -48°C; according to the tropopause chart, the tropopause is at FL 330. What is the most likely temperature at FL 350 ?
	<ul style="list-style-type: none"> <li>a -56,5°C.</li> <li>b -50°C.</li> <li><b>c -54°C.</b></li> <li>d -58°C.</li> </ul>

<b>35</b> id 1200	What is the most likely temperature at the tropical tropopause?
<b>a</b>	-55°C.
<b>b</b>	<b>-75°C.</b>
<b>c</b>	-35°C.
<b>d</b>	-25°C.
<b>36</b> id 1497	The 0° isotherm is forecast to be at FL 50. At what FL would you expect a temperature of -6° C?
<b>a</b>	FL 110
<b>b</b>	FL 20
<b>c</b>	FL 100
<b>d</b>	<b>FL 80</b>
<b>37</b> id 2070	In the lower part of the stratosphere the temperature
<b>a</b>	decreases with altitude
<b>b</b>	<b>is almost constant</b>
<b>c</b>	increases with altitude
<b>d</b>	increases at first and decreases afterward
<b>38</b> id 4972	Which is true of the temperature at the tropopause?
<b>a</b>	<b>It is higher in polar regions than in equatorial regions</b>
<b>b</b>	It is higher in equatorial regions than in polar regions
<b>c</b>	It is highest in middle latitudes
<b>d</b>	There is no significant difference with change of latitude
<b>39</b> id 6453	As altitude increases, the weight of the atmosphere above you will:
<b>a</b>	<b>decrease</b>
<b>b</b>	remain the same
<b>c</b>	increase
<b>d</b>	increase with 1,5 kg/m2 pr 1000 ft.
<b>40</b> id 6542	An inversion is characterized by:
<b>a</b>	Constant temperature with increasing altitude
<b>b</b>	Parts of the air mass at each level is warmer than surrounding air.
<b>c</b>	The tendency to increase relative humidity with increasing altitude.
<b>d</b>	<b>Increasing temperature with increasing altitude.</b>
<b>41</b> id 6716	While flying at FL 120, you notice an OAT of -2°C. At which altitude do you expect the freezing level to be?
<b>a</b>	<b>FL 110</b>
<b>b</b>	FL 130
<b>c</b>	FL 150
<b>d</b>	FL 90

## 50.01.02.02. Transfer of heat:

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**42** | Several physical processes contribute to atmospheric warming. Which of the  
id 130 | following contribute the most ?

- a Absorption and evaporation.
- b Solar radiation and conduction.
- c Absorption and vaporization.
- d Convection and condensation.**

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**43** | Convective activity over land in mid-latitudes is greatest in  
id 1160 |

- a winter in the afternoon.
- b winter during the night and early morning.
- c summer during the night and early morning.
- d summer in the afternoon.**

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**44** | Advection is :  
id 3614 |

- a the same as convection
- b vertical motion of air
- c the same as subsidence
- d horizontal motion of air**

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**45** | The radiation of the sun heats  
id 3616 |

- a the air in the troposphere only directly if no clouds are present
- b the air in the troposphere directly
- c the water vapour in the air of the troposphere
- d the surface of the earth, which heats the air in the troposphere**

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**46** | The majority of troposphere heating is the result of:  
id 6454 |

- a Radiation of the sun
- b Heating from the ground below**
- c Re-radiation of the sun's rays from the surface of the earth
- d Re-radiation from the clouds.

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**47** | Why is a calm and clear-sky night cooler than a cloudy night?  
id 6455 |

- a The clouds prevent radiation from the atmosphere
- b There is radiation from the clouds
- c The radiation from the earth's surface slips into space.**
- d Due to contents of carbon dioxide.

## 50.01.02.03. Lapse rate, stability and instability

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**48** | A layer is conditionally unstable if the air  
id 132 |

- a is unstable for saturated air as well as for dry air.
- b is stable for saturated air and unstable for dry air.
- c becomes stable by lifting it.
- d is unstable for saturated air and stable for dry air.**



<b>49</b> id 1161	Absolute instability exists whenever the environmental lapse rate <ul style="list-style-type: none"> <li>a exceeds the saturated adiabatic lapse rate.</li> <li><b>b exceeds the dry adiabatic lapse rate.</b></li> <li>c is less than the saturated adiabatic lapse rate.</li> <li>d is between the dry and saturated adiabatic lapse rate.</li> </ul>
<b>50</b> id 2067	In an air mass with no clouds the surface temperature is 15°C and 13°C at 1000m. This layer of air is: <ul style="list-style-type: none"> <li>a unstable</li> <li><b>b stable</b></li> <li>c a layer of heavy turbulence</li> <li>d conditionally unstable</li> </ul>
<b>51</b> id 3602	An inversion is a layer of air which is <ul style="list-style-type: none"> <li>a absolutely unstable</li> <li><b>b absolutely stable</b></li> <li>c conditionally unstable</li> <li>d conditionally stable</li> </ul>
<b>52</b> id 3603	The environmental lapse rate in an actual atmosphere <ul style="list-style-type: none"> <li>a has a fixed value of 2°C/1000 FT</li> <li>b has a fixed value of 1°C/100m</li> <li>c has a fixed value of 0.65°C/100m</li> <li><b>d varies with time</b></li> </ul>
<b>53</b> id 3604	The dry adiabatic lapse rate has a value of <ul style="list-style-type: none"> <li>a 0.5°C/100m</li> <li>b 2°C/1000FT</li> <li>c 0.65°C/100m</li> <li><b>d 1°C/100m</b></li> </ul>
<b>54</b> id 3605	The dry adiabatic lapse rate <ul style="list-style-type: none"> <li><b>a has a constant fixed value</b></li> <li>b is greater in summer than in winter</li> <li>c is greater during the night than during the day</li> <li>d has a variable value</li> </ul>
<b>55</b> id 3606	An air mass is called stable when <ul style="list-style-type: none"> <li><b>a the vertical motion of rising air tends to become weaker and disappears</b></li> <li>b the temperature in a given air mass decreases rapidly with height</li> <li>c the pressure in a given area is constant</li> <li>d the environmental lapse rate is high, with little vertical motion of air currents</li> </ul>

56 id 4003	In still air the temperature decreases at an average of 1.2°C per 100 m increase in altitude. This temperature change is called:
	<ul style="list-style-type: none"> <li>a saturated adiabatic lapse rate</li> <li><b>b environmental lapse rate</b></li> <li>c dry adiabatic lapse rate</li> <li>d normal lapse rate</li> </ul>
57 id 4041	A layer can be
	<ul style="list-style-type: none"> <li>a unstable for unsaturated air and conditionally unstable</li> <li>b stable for saturated air and unstable for unsaturated air</li> <li>c unstable for unsaturated air and neutral for saturated air</li> <li><b>d stable for unsaturated air and unstable for saturated air</b></li> </ul>
58 id 4046	When in the upper part of a layer warm air is advected the
	<ul style="list-style-type: none"> <li><b>a stability increases in the layer</b></li> <li>b stability decreases in the layer</li> <li>c wind will back with increasing height in the northern hemisphere</li> <li>d wind speed will always decrease with increasing height in the northern hemisphere</li> </ul>
59 id 4125	From which of the following pieces of information can the stability of the atmosphere be derived?
	<ul style="list-style-type: none"> <li>a Surface temperature</li> <li><b>b Environmental lapse rate</b></li> <li>c Dry adiabatic lapse rate</li> <li>d Pressure at the surface</li> </ul>
60 id 4973	The value of the saturated adiabatic lapse rate is closest to that of the dry adiabatic lapse rate in
	<ul style="list-style-type: none"> <li>a cumulus</li> <li>b freezing fog</li> <li>c stratus</li> <li><b>d cirrus</b></li> </ul>
61 id 6408	The weather is clear and the temperature decreases uniformly and rapidly as you climb (approaching 3°C per 1000 ft), you have an indication of:
	<ul style="list-style-type: none"> <li>a Stable air.</li> <li><b>b Unstable air.</b></li> <li>c Saturation.</li> <li>d Sublimation.</li> </ul>
62 id 6482	Absolute instability in a layer of air is characterized by the vertical temperature gradient in the layer being:
	<ul style="list-style-type: none"> <li><b>a Greater than 1°/100 m.</b></li> <li>b Greater than 0.5°/100 m.</li> <li>c Less than 0.65°/100 m.</li> <li>d Less than 0.6°/100 m.</li> </ul>

<b>63</b> id 6581	What is meant by "standard lapse rate"?
	<ul style="list-style-type: none"> <li>a Temperature increases as height increases</li> <li><b>b Temperature decreases as height increases</b></li> <li>c Temperature remains constant as height increases</li> <li>d</li> </ul>
<b>64</b> id 6596	The lapse rate for a dry parcel of air is:
	<ul style="list-style-type: none"> <li><b>a 3°C/1000ft</b></li> <li>b 1.5°C/1000ft</li> <li>c 1.98°C/1000ft</li> <li>d</li> </ul>
<b>65</b> id 6620	An environmental lapse rate is observed to be 2.5C/1000ft. Which of the following is correct?
	<ul style="list-style-type: none"> <li><b>a A dry parcel of air would be stable if it was forced to rise</b></li> <li>b A saturated parcel of air would be stable if it was forced to rise</li> <li>c A dry parcel of air would be unstable if it was forced to rise</li> <li>d</li> </ul>
<b>66</b> id 6675	What feature is associated with a temperature inversion?
	<ul style="list-style-type: none"> <li><b>a A stable layer of air</b></li> <li>b An unstable layer of air</li> <li>c Air mass thunderstorms</li> <li>d Cold front</li> </ul>
<b>67</b> id 6676	What is indicated about an air mass if the temperature remains unchanged or decreases slightly as altitude is increased?
	<ul style="list-style-type: none"> <li>a The air is unstable</li> <li>b A temperature inversion exists</li> <li><b>c The air is stable</b></li> <li>d</li> </ul>
<b>68</b> id 6677	Which condition is present when a local parcel of air is stable?
	<ul style="list-style-type: none"> <li><b>a The parcel of air resists convection</b></li> <li>b The parcel of air cannot be forced uphill</li> <li>c As the parcel of air moves upward, its temperature becomes warmer than the surrounding air</li> <li>d</li> </ul>
<b>69</b> id 6678	How can the stability of the atmosphere be determined?
	<ul style="list-style-type: none"> <li><b>a Ambient temperature lapse rate</b></li> <li>b Atmospheric pressure at various levels</li> <li>c Surface temperature/dewpoint spread.</li> <li>d</li> </ul>

<b>70</b> id 6729	From which of the following pieces of information can stability of the atmosphere be derived?
<b>a</b>	Dry adiabatic lapse rate
<b>b</b>	Pressure at the surface
<b>c</b>	Surface temperature
<b>d</b>	<b>Environmental lapse rate</b>

<b>71</b> id 6754	State the preference of a layer of air with no clouds, surface temperature 15°C, and 13°C at 1000 metres:
<b>a</b>	<b>Stable layer</b>
<b>b</b>	Unstable layer
<b>c</b>	The preference cannot be determined
<b>d</b>	None of the above

<b>72</b> id 6855	What is the preference of a layer with constant temperature?
<b>a</b>	<b>Absolutely stable</b>
<b>b</b>	Unstable
<b>c</b>	Relatively stable
<b>d</b>	An example of an inversion

#### 50.01.02.04. Development of inversions, inversions

<b>73</b> id 137	Which of the following is a common cause of ground or surface temperature inversion ?
<b>a</b>	Heating of the air by subsidence
<b>b</b>	Warm air being lifted rapidly aloft, in the vicinity of mountainous terrain.
<b>c</b>	The movement of colder air under warm air, or the movement of warm air over cold air.
<b>d</b>	<b>Terrestrial radiation on a clear night with no or very light winds.</b>

<b>74</b> id 1162	Which of the following is a common result of subsidence ?
<b>a</b>	Clear air turbulence at higher altitudes .
<b>b</b>	CB-clouds and thunderstorms over a large area.
<b>c</b>	Wide spread NS and AS clouds and intense precipitation.
<b>d</b>	<b>An inversion over a large area with haze, mist.</b>

<b>75</b> id 2082	What characteristic is associated with a temperature inversion ?
<b>a</b>	<b>Stability</b>
<b>b</b>	Instability
<b>c</b>	Clear ice
<b>d</b>	Area of active storms

<b>76</b> id 2389	What is the technical term for an increase in temperature with altitude?
<b>a</b>	Subsidence
<b>b</b>	<b>Inversion</b>
<b>c</b>	Adiabatic
<b>d</b>	Advection

<b>77</b> id 3600	An inversion is a layer of air in which the temperature
	<ul style="list-style-type: none"> <li>a increases with height more than 1°C/100m</li> <li>b remains constant with height</li> <li><b>c increases with height</b></li> <li>d decreases with height more than 1°C/100m</li> </ul>
<b>78</b> id 3601	An isothermal layer is a layer of air in which the temperature
	<ul style="list-style-type: none"> <li>a increases with height at a constant rate</li> <li>b increases with height</li> <li>c decreases with height at a constant rate</li> <li><b>d remains constant with height</b></li> </ul>
<b>79</b> id 4002	An inversion is
	<ul style="list-style-type: none"> <li><b>a an increase of temperature with height</b></li> <li>b an increase of pressure with height</li> <li>c a decrease of pressure with height</li> <li>d a decrease of temperature with height</li> </ul>
<b>80</b> id 4122	A significant inversion at low height is a characteristic of
	<ul style="list-style-type: none"> <li>a the passage of cold front</li> <li><b>b nocturnal radiation</b></li> <li>c advection fog</li> <li>d cumulus clouds</li> </ul>
<b>81</b> id 6579	What is meant by "inversion"?
	<ul style="list-style-type: none"> <li><b>a Temperature increases as height increases</b></li> <li>b Temperature decreases as height increases</li> <li>c Temperature remains constant as height increases</li> <li>d</li> </ul>
<b>82</b> id 6580	What is meant by "isothermal layer"?
	<ul style="list-style-type: none"> <li>a Temperature increases as height increases</li> <li>b Temperature decreases as height increases</li> <li><b>c Temperature remains constant as height increases</b></li> <li>d</li> </ul>
<b>83</b> id 6658	Where is a common location for an inversion?
	<ul style="list-style-type: none"> <li>a At the tropopause</li> <li><b>b In the stratosphere</b></li> <li>c At the base of cumulus clouds</li> <li>d</li> </ul>

<b>84</b> id 6712	A temperature increase with increasing altitude is called
<ul style="list-style-type: none"> <li>a Subsidence</li> <li><b>b Inversion</b></li> <li>c Adiabate</li> <li>d Advection</li> </ul>	
<b>85</b> id 6916	Continuous freezing rain is observed at an airport. Which would be the most probable vertical temperature lapse rate?
<ul style="list-style-type: none"> <li>a A</li> <li>b B</li> <li>c C</li> <li><b>d D</b></li> </ul>	
<b>86</b> id 6934	What is the cause for a surface temperature inversion?
<ul style="list-style-type: none"> <li>a The presence of a high pressure area</li> <li>b The presence of a polar front depression</li> <li>c Moist, unstable air, and a lifting action</li> <li><b>d By heavy radiational cooling at night of the lowest layer of air, or if warm air moves in over a colder surface</b></li> </ul>	
<b>50.01.02.05. Temp. near the earth's surface, surface eff.</b>	
<b>87</b> id 3617	The diurnal variation in temperature is largest when the sky is
<ul style="list-style-type: none"> <li>a clear and winds are strong</li> <li><b>b clear and winds are weak</b></li> <li>c overcast and winds are weak</li> <li>d overcast and winds are strong</li> </ul>	
<b>88</b> id 5548	Around Paris on January 3rd at 1800 UTC, the surface temperature, under shelter, is 3°C. The sky is covered by 8 oktas of stratus. QNH is 1033 hPa. If the sky is covered all night, the minimum temperature of the night of January 3rd to January 4th should be
<ul style="list-style-type: none"> <li>a slightly above +3°C.</li> <li>b significantly below 0°C.</li> <li><b>c slightly below +3°C.</b></li> <li>d significantly above +3°C.</li> </ul>	
<b>89</b> id 5549	On a clear sky, continental ground surface, wind calm, the minimum temperature is reached approximately
<ul style="list-style-type: none"> <li>a at the moment the sun rises</li> <li>b half an hour before sunrise</li> <li><b>c half an hour after sunrise</b></li> <li>d one hour before sunrise</li> </ul>	

<b>90</b> id 6467	Temperature variation during 24 hours is least over:
<b>a Sea.</b>	
<b>b Grass.</b>	
<b>c Mountain.</b>	
<b>d Forest.</b>	

<b>91</b> id 6577	Over which of the following surface types would you expect the greatest diurnal range of temperature to occur?
<b>a An extensive forest area</b>	
<b>b A desert area</b>	
<b>c An ocean</b>	
<b>d</b>	

### 50.01.03. Atmospheric pressure

#### 50.01.03.01. Barometric pressure, isobars

<b>92</b> id 1498	What positions are connected by isobars on the surface weather chart?
<b>a Positions with the same air pressure at a given level</b>	
<b>b Positions with the same temperature at a given level</b>	
<b>c Positions with the same wind velocity at a given level</b>	
<b>d Positions with the same relative pressure heights</b>	

<b>93</b> id 2086	The isobars drawn on a surface weather chart represent lines of equal pressure
<b>a at a determined density altitude</b>	
<b>b at flight level</b>	
<b>c at height of observatory</b>	
<b>d reduced to sea level</b>	

<b>94</b> id 2390	The station pressure used in surface weather charts is
<b>a QNE</b>	
<b>b QFE</b>	
<b>c QNH</b>	
<b>d QFF</b>	

<b>95</b> id 4170	Isobars on a surface chart are lines of equal
<b>a QFE</b>	
<b>b QFF</b>	
<b>c QNE</b>	
<b>d QNH</b>	

<b>96</b> id 4989	The pressure system at position "b" is a
<b>a ridge of high pressure</b>	
<b>b secondary low</b>	
<b>c trough of low pressure</b>	
<b>d col</b>	

<b>97</b> id 5004	The pressure distribution located mainly at point B is a
	<ul style="list-style-type: none"> <li>a depression</li> <li>b col</li> <li>c trough of low pressure</li> <li><b>d ridge of high pressure</b></li> </ul>
<b>98</b> id 6451	At sea level, the pressure of the atmosphere on a standard day will cause the mercury in the column to rise to:
	<ul style="list-style-type: none"> <li>a 92.29 inches</li> <li>b 19.19 inches</li> <li>c 29.29 inches</li> <li><b>d 29.92 inches</b></li> </ul>
<b>99</b> id 6452	What is dynamic pressure?
	<ul style="list-style-type: none"> <li>a Turbulence.</li> <li><b>b Pressure caused by movement.</b></li> <li>c Acceleration force.</li> <li>d Centrifugal force.</li> </ul>
<b>100</b> id 6458	The unit of pressure most commonly used in meteorology is:
	<ul style="list-style-type: none"> <li>a kg /cm<sup>2</sup>.</li> <li>b lbs/inch<sup>2</sup>.</li> <li><b>c hPa</b></li> <li>d tons/m<sup>2</sup>.</li> </ul>
<b>101</b> id 6464	Lines connecting points of equal pressure are called:
	<ul style="list-style-type: none"> <li>a Isogonic lines.</li> <li><b>b Isobars.</b></li> <li>c Agonic.</li> <li>d Barometric.</li> </ul>
<b>102</b> id 6582	A line on a chart joining places of equal sea level pressure is called an:
	<ul style="list-style-type: none"> <li>a Isogonal</li> <li>b Agonic line</li> <li><b>c Isobar</b></li> <li>d Isotherm</li> </ul>
<b>103</b> id 6686	What is the pressure in surface weather charts called?
	<ul style="list-style-type: none"> <li>a QFE</li> <li><b>b QFF</b></li> <li>c QNH</li> <li>d QNE</li> </ul>



<b>104</b> id 6808	What can be said about isobars?
	<ul style="list-style-type: none"> <li><b>a Isobars appear on meteorological surface charts</b></li> <li>b Isobars are lines of equal temperature</li> <li>c Certain information can be depicted with the isobars on upper level charts</li> <li>d Isobars show wind speeds around a jet stream area</li> </ul>
<b>50.01.03.02. Pressure variation with height</b>	
<b>105</b> id 126	In the troposphere the decrease of pressure per 100 m increase in height
	<ul style="list-style-type: none"> <li>a is greater at higher levels than at lower levels.</li> <li>b remains constant at all levels.</li> <li><b>c is smaller at higher levels than at lower levels.</b></li> <li>d is in the order of 27 hPa near MSL.</li> </ul>
<b>106</b> id 128	What is the approximate vertical interval which is equal to a pressure change of 1 hPa at an altitude of 5500 m ?
	<ul style="list-style-type: none"> <li><b>a 15 m (50 FT).</b></li> <li>b 8 m (27 FT).</li> <li>c 32 m (105 FT).</li> <li>d 64 m (210 FT).</li> </ul>
<b>107</b> id 3609	Which of the following is true concerning atmospheric pressure ?
	<ul style="list-style-type: none"> <li>a It is higher in winter than in summer</li> <li><b>b It decreases with height</b></li> <li>c It is higher at night than during the day</li> <li>d It always decreases with height at a rate of 1 hPa per 8m</li> </ul>
<b>108</b> id 5550	An isohypse (contour)
	<ul style="list-style-type: none"> <li>a indicates the altitude of the zero degree isotherm</li> <li>b is the longest slope line of a frontal surface</li> <li>c is the limit between two air masses of different temperature</li> <li><b>d indicates the true altitude of a pressure level</b></li> </ul>
<b>109</b> id 6574	The rate of fall of pressure with height is:
	<ul style="list-style-type: none"> <li><b>a Greater in cold air than in warm air</b></li> <li>b Greater in warm air than in cold air</li> <li>c Inversely proportional to temperature</li> <li>d</li> </ul>
<b>110</b> id 6575	The average change of pressure with height in the lower atmosphere is:
	<ul style="list-style-type: none"> <li><b>a 1 hPa/27ft</b></li> <li>b 1 hPa/20ft</li> <li>c 1 hPa/50ft</li> <li>d 1 hPa/56 ft</li> </ul>

<b>1 1 1</b> id 6681	The isohypse 2960 m can be expected at the constant pressure chart for the following pressure level: <b>a</b> 850 hPa <b>b 700 hPa</b> <b>c</b> 500 hPa <b>d</b> 300 hPa
<b>1 1 2</b> id 6682	The isohypse 1620 m can be expected at the constant pressure chart for the following pressure level: <b>a 850 hPa</b> <b>b</b> 700 hPa <b>c</b> 500 hPa <b>d</b> 300 hPa
<b>1 1 3</b> id 6683	The isohypse 11880 m can be expected at the constant pressure chart for the following pressure level: <b>a</b> 850 hPa <b>b</b> 700 hPa <b>c</b> 500 hPa <b>d 200 hPa</b>
<b>1 1 4</b> id 6684	The isohypse 5700 m can be expected at the constant pressure chart for the following pressure level: <b>a</b> 300 hPa <b>b</b> 700 hPa <b>c 500 hPa</b> <b>d</b> 200 hPa
<b>1 1 5</b> id 6685	The isohypse 8760 m can be expected at the constant pressure chart for the following pressure level: <b>a 300 hPa</b> <b>b</b> 700 hPa <b>c</b> 500 hPa <b>d</b> 200 hPa
<b>1 1 6</b> id 6687	At which average height can the 700 hPa pressure level in moderate latitudes be expected? <b>a 3,0 km AMSL</b> <b>b</b> 5,5 km AMSL <b>c</b> 9,0 km AMSL <b>d</b> 12,0 km AMSL
<b>1 1 7</b> id 6688	At which average height can the 500 hPa pressure level in moderate latitudes be expected? <b>a</b> 3,0 km AMSL <b>b 5,5 km AMSL</b> <b>c</b> 9,0 km AMSL <b>d</b> 12,0 km AMSL

<b>118</b> id 6689	At which average height can the 200 hPa pressure level in moderate latitudes be expected?
a	3,0 km AMSL
b	5,5 km AMSL
c	9,0 km AMSL
d	<b>12,0 km AMSL</b>
<b>119</b> id 6690	At which average height can the 300 hPa pressure level in moderate latitudes be expected?
a	1,5 km AMSL
b	3,0 km AMSL
c	<b>9,0 km AMSL</b>
d	12,0 km AMSL
<b>120</b> id 6691	At which average height can the 850 hPa pressure level in moderate latitudes be expected?
a	<b>1,5 km AMSL</b>
b	3,0 km AMSL
c	9,0 km AMSL
d	12,0 km AMSL
<b>121</b> id 6699	What is the value for a pressure change of 1 hPa at an altitude of 5500 m?
a	approx. 8 m (27ft)
b	<b>approx. 16 m (54 ft)</b>
c	approx. 32 m (105 ft)
d	approx. 64 m (210 ft)

### 50.01.03.03. Reduction of pressure to mean sea level

<b>122</b> id 129	In order to calculate QFE from QNH, which of the following must be known ?
a	Elevation and the temperature at the airfield.
b	Temperature at the airfield.
c	Elevation of the airfield and the temperature at MSL.
d	<b>Elevation of the airfield.</b>
<b>123</b> id 2395	The QFF at an airfield located 400 metres above sea level is 1016 hPa. The air temperature is 10°C higher than a standard atmosphere. What is the QNH?
a	Less than 1016 hPa
b	1016 hPa
c	<b>More than 1016 hPa</b>
d	It is not possible to give a definitive answer
<b>124</b> id 2396	The QFF at an airfield located 400 metres above sea level is 1016 hPa. The air temperature is 10°C lower than a standard atmosphere. What is the QNH?
a	It is not possible to give a definitive answer
b	More than 1016 hPa
c	1016 hPa
d	<b>Less than 1016 hPa</b>

<b>125</b> id 2397	The QNH at an airfield located 200 metres above sea level is 1009 hPa. The air temperature is 10°C lower than a standard atmosphere. What is the QFF?
<b>a</b> Less than 1009 hPa <b>b</b> 1009 hPa <b>c More than 1009 hPa</b> <b>d</b> It is not possible to give a definitive answer	
<b>126</b> id 2398	The QNH at an airfield located 200 metres above sea level is 1022 hPa. The air temperature is not available. What is the QFF?
<b>a</b> Less than 1022 hPa <b>b</b> More than 1022 hPa <b>c</b> 1022 hPa <b>d It is not possible to give a definitive answer</b>	
<b>127</b> id 2399	The QNH at an airfield located 0 metres above sea level is 1022 hPa. The air temperature is not available. What is the QFF?
<b>a</b> It is not possible to give a definitive answer <b>b</b> Less than 1022 hPa <b>c</b> More than 1022 hPa <b>d 1022 hPa</b>	
<b>128</b> id 2400	The QNH at an airfield in California located 69 metres below sea level is 1018 hPa. The air temperature is 10°C higher than a standard atmosphere. What is the QFF?
<b>a More than 1018 hPa</b> <b>b</b> Less than 1018 hPa <b>c</b> 1018 hPa <b>d</b> It is not possible to give a definitive answer	
<b>129</b> id 2401	The QFF at an airfield in California located 69 metres below sea level is 1030 hPa. The air temperature is 10°C lower than a standard atmosphere. What is the QNH?
<b>a</b> It is not possible to give a definitive answer <b>b</b> Less than 1030 hPa <b>c</b> 1030 hPa <b>d More than 1030 hPa</b>	
<b>130</b> id 2402	If the QFE at Locarno (200 metres above sea level) is 980 hPa, what is the approximate QNH ?
<b>a</b> 1015 hPa <b>b</b> 1000 hPa <b>c 1005 hPa</b> <b>d</b> 1010 hPa	
<b>131</b> id 2403	If the QFE at Locarno (200 metres above sea level) is 1000 hPa, what is the approximate QNH?
<b>a</b> 985 hPa <b>b 1025 hPa</b> <b>c</b> 990 hPa <b>d</b> 1035 hPa	

<b>132</b> id 2404	If the QNH at Locarno (200 metres above sea level) is 1015 hPa, what is the approximate QFE? (Assume 1hPa = 8m)
	<ul style="list-style-type: none"> <li>a 1005 hPa</li> <li>b 995 hPa</li> <li>c 1000 hPa</li> <li><b>d 990 hPa</b></li> </ul>
<b>133</b> id 2405	If the QNH at Locarno (200 metres above sea level) is 1025 hPa, what is the approximate QFE?
	<ul style="list-style-type: none"> <li>a 1005 hPa</li> <li>b 995 hPa</li> <li><b>c 1000 hPa</b></li> <li>d 1025 hPa</li> </ul>
<b>134</b> id 3610	QNH is defined as
	<ul style="list-style-type: none"> <li><b>a QFE reduced to MSL using the values of the standard atmosphere</b></li> <li>b pressure at MSL in the standard atmosphere</li> <li>c pressure at MSL in the actual atmosphere</li> <li>d QFE reduced to MSL using the values of the actual atmosphere</li> </ul>
<b>135</b> id 4129	In order to reduce QFE to QNH, which of the following item(s) must be known ?
	<ul style="list-style-type: none"> <li>a Elevation of the airfield and the temperature at the airfield</li> <li>b Temperature at the airfield</li> <li>c Elevation of the airfield and the temperature at MSL</li> <li><b>d Elevation of the airfield</b></li> </ul>
<b>136</b> id 6692	At an airport (400 m AMSL), a QFF of 1016 hPa and a temperature 10°C higher than ISA is observed:
	<ul style="list-style-type: none"> <li><b>a The QNH is higher than 1016 hPa</b></li> <li>b The QNH is lower than 1016 hPa</li> <li>c The QNH equals 1016 hPa</li> <li>d The QNH cannot be determined</li> </ul>
<b>137</b> id 6693	At an airport (400 m AMSL), a QFF of 1016 hPa and a temperature 10°C lower than ISA is observed:
	<ul style="list-style-type: none"> <li>a The QNH is higher than 1016 hPa</li> <li><b>b The QNH is lower than 1016 hPa</b></li> <li>c The QNH equals 1016 hPa</li> <li>d The QNH cannot be determined</li> </ul>
<b>138</b> id 6694	At an airport (200 m AMSL), a QNH of 1009 hPa and a temperature 10°C lower than ISA is observed:
	<ul style="list-style-type: none"> <li><b>a The QFF is higher than 1016 hPa</b></li> <li>b The QFF is lower than 1016 hPa</li> <li>c The QFF equals 1009 hPa</li> <li>d The QFF cannot be determined</li> </ul>

<b>139</b> id 6695	At an airport (200 m AMSL), a QNH of 1022 hPa is observed and the temperature is unknown: <b>a</b> The QFF is higher than 1022 hPa <b>b</b> The QFF is lower than 1022 hPa <b>c</b> The QFF equals 1022 hPa <b>d The QFF cannot be determined</b>
<b>140</b> id 6696	At an airport (0 m AMSL), a QNH of 1022 hPa is observed and the temperature is unknown: <b>a</b> The QFF is higher than 1022 hPa <b>b</b> The QFF is lower than 1022 hPa <b>c The QFF equals 1022 hPa</b> <b>d</b> The QFF cannot be determined
<b>141</b> id 6697	At an airport in California (69 m below MSL), a QNH of 1018 hPa and a temperature 10°C higher than standard is observed: <b>a The QFF is higher than 1018 hPa</b> <b>b</b> The QFF is lower than 1018 hPa <b>c</b> The QFF equals 1018 hPa <b>d</b> The QFF cannot be determined
<b>142</b> id 6698	At an airport in California (69 m below MSL), a QFF of 1030 hPa and a temperature 10°C lower than standard is observed: <b>a The QNH is higher than 1030 hPa</b> <b>b</b> The QNH is lower than 1030 hPa <b>c</b> The QNH equals 1030 hPa <b>d</b> The QNH cannot be determined
<b>143</b> id 6700	QFE 980 hPa at an altitude of 200 m AMSL: What will the approximate QNH be? <b>a</b> 1000 hPa <b>b 1005 hPa</b> <b>c</b> 1010 hPa <b>d</b> 1015 hPa
<b>144</b> id 6701	QFE 1000 hPa at an altitude of 200 m AMSL: What will the approximate QNH be? <b>a</b> 985 hPa <b>b</b> 990 hPa <b>c 1025 hPa</b> <b>d</b> 1035 hPa
<b>145</b> id 6702	QNH 1015 hPa at an altitude of 200 m AMSL: What will the approximate QFE be? <b>a 990 hPa</b> <b>b</b> 995 hPa <b>c</b> 1000 hPa <b>d</b> 1005 hPa

<b>146</b> id 6703	QNH 1025 hPa at an altitude of 200 m AMSL: What will the approximate QFE be?
	<ul style="list-style-type: none"> <li>a 995 hPa</li> <li><b>b 1000 hPa</b></li> <li>c 1005 hPa</li> <li>d 1025 hPa</li> </ul>
<b>147</b> id 6724	State the definition for QNH:
	<ul style="list-style-type: none"> <li><b>a QFE reduced to MSL, using standard temperature gradient</b></li> <li>b QFF reduced to MSL, using standard temperature gradient</li> <li>c QFE reduced to MSL, using actual temperature gradient</li> <li>d QNE reduced to MSL, using standard temperature gradient</li> </ul>
<b>148</b> id 6725	State the definition for QFF:
	<ul style="list-style-type: none"> <li>a QFE reduced to MSL, using standard temperature gradient</li> <li>b QNH reduced to MSL, using standard temperature gradient</li> <li><b>c QFE reduced to MSL, using actual temperature gradient</b></li> <li>d QNE reduced to MSL, using standard temperature gradient</li> </ul>
<b>149</b> id 6726	Which value has to be known to calculate the QNH out of the QFE?
	<ul style="list-style-type: none"> <li><b>a Field elevation</b></li> <li>b Actual temperature</li> <li>c The relative humidity of the air</li> <li>d The density altitude of the field</li> </ul>
<b>150</b> id 6835	Which statement is true?
	<ul style="list-style-type: none"> <li><b>a QNH can be equal to QFE</b></li> <li>b QNH is always lower than QFE</li> <li>c QFE is always lower than QNH</li> <li>d QFE can be equal to QFF only</li> </ul>
<b>151</b> id 6845	State the definition for QNH:
	<ul style="list-style-type: none"> <li><b>a Pressure reduced to sea level, using the standard temperature gradient</b></li> <li>b QFF reduced to MSL, using standard temperature gradient</li> <li>c QFE reduced to MSL, using actual temperature gradient</li> <li>d QNE reduced to MSL, using standard temperature gradient</li> </ul>
<b>50.01.04. Atmospheric density</b>	
<b>50.01.04.01. Interrelationship of pressure, temp.</b>	
<b>152</b> id 123	At FL 180, the air temperature is -35°C. The air density at this level is:
	<ul style="list-style-type: none"> <li><b>a Greater than the density of the ISA atmosphere at FL 180.</b></li> <li>b Less than the density of the ISA atmosphere at FL 180.</li> <li>c Equal to the density of the ISA atmosphere at FL 180.</li> <li>d Unable to be determined without knowing the QNH.</li> </ul>

<b>153</b> id 125	Under what condition does pressure altitude have the same value as density altitude ?
	<ul style="list-style-type: none"> <li>a When the altimeter has no position error.</li> <li>b At sea level when the temperature is 0°C.</li> <li><b>c At standard temperature.</b></li> <li>d When the altimeter setting is 1013,2 hPa.</li> </ul>
<b>154</b> id 2068	Half the mass of the atmosphere is found in the first
	<ul style="list-style-type: none"> <li>a 11 km</li> <li>b 3 km</li> <li>c 8 km</li> <li><b>d 5 km</b></li> </ul>
<b>155</b> id 6407	Stratiform clouds indicate stable air. Flight generally will be:
	<ul style="list-style-type: none"> <li>a Rough with good visibility.</li> <li><b>b Smooth with low ceiling and visibility.</b></li> <li>c Smooth with good visibility.</li> <li>d Smooth with moderate turbulence and good visibility.</li> </ul>
<b>156</b> id 6460	In relation to 'air density' which of the following responses are correct:
	<ul style="list-style-type: none"> <li>a Cold air is less dense than warm air.</li> <li><b>b Dry warm air is less dense than cold air.</b></li> <li>c If the temperature is decreasing the air density will decrease</li> <li>d Air density is not influenced of air humidity.</li> </ul>
<b>157</b> id 6543	Which of the following combinations contain the greatest air density?
	<ul style="list-style-type: none"> <li>a High pressure and high temperature.</li> <li><b>b High pressure and low temperature.</b></li> <li>c Low pressure and high temperature.</li> <li>d Low pressure and low temperature.</li> </ul>
<b>158</b> id 6544	Air density is mass of air per unity of volume, and is influenced by:
	<ul style="list-style-type: none"> <li>a Pressure, latitude and season.</li> <li>b Pressure, temperature and the amount of water vapour.</li> <li>c Altitude</li> <li><b>d both b) and c) are correct.</b></li> </ul>
<b>159</b> id 6637	Which statement is true?
	<ul style="list-style-type: none"> <li>a Air density generally increases as altitude increases</li> <li>b Air density generally stays the same as altitude increases</li> <li><b>c Air density generally decreases as altitude increases</b></li> <li>d</li> </ul>



## 50.01.05. International Standard Atmosphere (ISA)

### 50.01.05.01. International Standard Atmosphere

<b>160</b> id 124	The lowest assumed temperature in the International Standard Atmosphere (ISA) is : <b>a</b> -44.7°C <b>b</b> -273°C <b>c</b> <b>-56.5°C</b> <b>d</b> -100°C
<b>161</b> id 127	A 200 hPa pressure altitude level can vary in height. In temperate regions which of the following average heights is applicable ? <b>a</b> FL 50. <b>b</b> FL 300. <b>c</b> FL 100. <b>d</b> <b>FL 390.</b>
<b>162</b> id 135	The temperature at FL 140 is -12°C. What will the temperature be at FL 110 if the ICAO standard lapse rate is applied ? <b>a</b> -9°C. <b>b</b> -18°C. <b>c</b> <b>-6°C.</b> <b>d</b> -15°C.
<b>163</b> id 1159	An outside air temperature of -35°C is measured while cruising at FL 200. What is the temperature deviation from the ISA at this level? <b>a</b> 5°C colder than ISA. <b>b</b> 10°C warmer than ISA. <b>c</b> 5°C warmer than ISA. <b>d</b> <b>10°C colder than ISA.</b>
<b>164</b> id 2089	How does temperature vary with increasing altitude in the ICAO standard atmosphere below the tropopause? <b>a</b> At first it increases and higher up it decreases <b>b</b> Increases <b>c</b> <b>Decreases</b> <b>d</b> Remains constant
<b>165</b> id 2092	What is the vertical temperature lapse rate, up to 11 km, in the standard ICAO atmosphere ? <b>a</b> 2°C per 1000 m <b>b</b> 4.5°C per 1000 m <b>c</b> 3°C per 1000 m <b>d</b> <b>6.5°C per 1000 m</b>
<b>166</b> id 2382	The temperature at FL 80 is +6°C. What will the temperature be at FL 130 if the ICAO standard lapse rate is applied ? <b>a</b> +2°C <b>b</b> -6°C <b>c</b> 0°C <b>d</b> <b>-4°C</b>

<b>167</b> id 2383	The temperature at FL 110 is -5°C. What will the temperature be at FL 50 if the ICAO standard lapse rate is applied ?
	<ul style="list-style-type: none"> <li>a -3°C</li> <li><b>b +3°C</b></li> <li>c 0°C</li> <li>d +7°C</li> </ul>
<b>168</b> id 2384	The temperature at FL 160 is -22°C. What will the temperature be at FL 90 if the ICAO standard lapse rate is applied ?
	<ul style="list-style-type: none"> <li>a -4°C</li> <li><b>b -8°C</b></li> <li>c 0°C</li> <li>d +4°C</li> </ul>
<b>169</b> id 2385	A temperature of +15°C is recorded at an altitude of 500 metres above sea level. If the vertical temperature gradient is that of a standard atmosphere, what will the temperature be at the summit of a mountain, 2500 metres above sea level?
	<ul style="list-style-type: none"> <li>a +4°C</li> <li><b>b +2°C</b></li> <li>c 0°C</li> <li>d -2°C</li> </ul>
<b>170</b> id 2386	How would you characterise an air temperature of -15°C at the 700 hPa level over western Europe?
	<ul style="list-style-type: none"> <li>a Within +/-5°C of ISA</li> <li>b High</li> <li><b>c Low</b></li> <li>d 20°C below standard</li> </ul>
<b>171</b> id 2387	How would you characterise an air temperature of -30°C at the 300 hPa level over western Europe?
	<ul style="list-style-type: none"> <li>a Very low</li> <li>b Within +/-5°C of ISA</li> <li>c Low</li> <li><b>d High</b></li> </ul>
<b>172</b> id 2388	How would you characterise an air temperature of -55°C at the 200 hPa level over western Europe?
	<ul style="list-style-type: none"> <li><b>a Within +/-5°C of ISA</b></li> <li>b High</li> <li>c Low</li> <li>d Very high</li> </ul>
<b>173</b> id 2391	A 300 hPa pressure level can vary in height. In temperate regions which of the following average heights is applicable ?
	<ul style="list-style-type: none"> <li>a FL 100</li> <li>b FL 390</li> <li><b>c FL 300</b></li> <li>d FL 50</li> </ul>

<b>174</b> id 2392	A 500 hPa pressure level can vary in height. In temperate regions which of the following average heights is applicable ?
<b>a FL 180</b>	
<b>b FL 160</b>	
<b>c FL 100</b>	
<b>d FL 390</b>	
<b>175</b> id 2393	A 700 hPa pressure level can vary in height. In temperate regions which of the following average heights is applicable ?
<b>a FL 100</b>	
<b>b FL 180</b>	
<b>c FL 300</b>	
<b>d FL 390</b>	
<b>176</b> id 2394	A 850 hPa pressure level can vary in height. In temperate regions which of the following average heights is applicable ?
<b>a FL 300</b>	
<b>b FL100</b>	
<b>c FL 50</b>	
<b>d FL 390</b>	
<b>177</b> id 2406	If you are flying at FL 300 in an air mass that is 15°C warmer than a standard atmosphere, what is the outside temperature likely to be?
<b>a -30°C</b>	
<b>b -45°C</b>	
<b>c -60°C</b>	
<b>d -15°C</b>	
<b>178</b> id 2407	If you are flying at FL 100 in an air mass that is 10°C warmer than a standard atmosphere, what is the outside temperature likely to be?
<b>a +15°C</b>	
<b>b +5°C</b>	
<b>c -10°C</b>	
<b>d -15°C</b>	
<b>179</b> id 2408	If you are flying at FL 120 and the outside temperature is -2°C, at what altitude will the "freezing level" be?
<b>a FL 110</b>	
<b>b FL 130</b>	
<b>c FL 150</b>	
<b>d FL 90</b>	
<b>180</b> id 3595	The temperature at 10000 FT in the International Standard Atmosphere is :
<b>a -20°C</b>	
<b>b 0°C</b>	
<b>c -5°C</b>	
<b>d -35°C</b>	

<b>181</b> id 3596	The rate of decrease of temperature with height per 100 m in the International Standard Atmosphere is :
	<b>a 0.65°C</b> b 1°C c 0.5°C d variable
<b>182</b> id 3607	In the International Standard Atmosphere the decrease in temperature with height below 11 km is
	a 1°C per 100m <b>b 0.65°C per 100m</b> c 0.5°C per 100m d 0.6°C per 100m
<b>183</b> id 3608	Which statement is correct regarding the International Standard Atmosphere ?
	<b>a At MSL temperature is 15°C and pressure is 1013.25hPa</b> b At MSL temperature is 15°C and the decrease in temperature with height is 1°C per 100m c At MSL temperature is 10°C and the decrease in temperature with height is 1°C per 100m d At MSL pressure is 1013.25 hPa and the decrease of temperature with height is 1°C per 100m
<b>184</b> id 4169	In what hPa range is an upper weather chart for FL 340 situated?
	<b>a 300 - 200 hPa</b> b 400 - 300 hPa c 500 - 400 hPa d 600 - 500 hPa
<b>185</b> id 6459	The international standard atmosphere (ISA) is defined for mean sea level as :
	a 1015.25 hPa, 15°C, and a density of 1.225 kg/m <sup>3</sup> . b 1015.25 hPa, 15°C, with a lapse rate of 1.98°C per 1000 ft. c 1013.25 hPa, 15°C, a temperature lapse rate of 1.98°C per 1000 ft. and a humidity of 5%. <b>d 1013.25 hPa, 15°C, a temperature lapse rate of 1.98°C per 1000 ft. and a density of 1.225 kg/m<sup>3</sup></b>
<b>186</b> id 6466	The temperature gradient in the international standard atmosphere (ISA) is:
	a 1°C/100m. b 0,5°C/100m. <b>c 0.65°C/100m</b> d 0.6°C/100m.
<b>187</b> id 6584	The temperature at sea level in the ISA is:
	a +12,5°C b +25°C <b>c +15°C</b> d 0°C

<b>188</b> id 6595	The pressure at sea level in the ISA is:
<b>a</b>	1012.35 hPa
<b>b</b>	1025.13 hPa
<b>c</b>	<b>1013.25 hPa</b>
<b>d</b>	29,95 in Hg
<b>189</b> id 6704	At an altitude of 500 m AMSL, a temperature of +15°C is measured. What will the temperature be at an altitude of 2500 m, if you consider the temperature gradient of the Standard Atmosphere?
<b>a</b>	+4°C
<b>b</b>	<b>+2°C</b>
<b>c</b>	0°C
<b>d</b>	-2°C
<b>190</b> id 6705	FL 80, an OAT +06°C is measured. What will the temperature be at FL 130, if you consider the temperature gradient of the Standard Atmosphere?
<b>a</b>	<b>-4°C</b>
<b>b</b>	+2°C
<b>c</b>	0°C
<b>d</b>	-6°C
<b>191</b> id 6706	FL 110, an OAT -05°C is measured. What will the temperature be at FL 50, if you consider the temperature gradient of the Standard Atmosphere?
<b>a</b>	-3°C
<b>b</b>	+3°C
<b>c</b>	0°C
<b>d</b>	<b>+7°C</b>
<b>192</b> id 6707	FL 140, an OAT -12°C is measured. What will the temperature be at FL 110, if you consider the temperature gradient of the Standard Atmosphere?
<b>a</b>	+2°C
<b>b</b>	-2°C
<b>c</b>	<b>-6°C</b>
<b>d</b>	-18°C
<b>193</b> id 6708	FL 160, an OAT -22°C is measured. What will the temperature be at FL 90, if you consider the temperature gradient of the Standard Atmosphere?
<b>a</b>	<b>-8°C</b>
<b>b</b>	-4°C
<b>c</b>	+4°C
<b>d</b>	0°C
<b>194</b> id 6709	An OAT of -15°C at the 700 hPa pressure level:
<b>a</b>	equals approximately (+/-5°C) ISA
<b>b</b>	is high
<b>c</b>	<b>is low</b>
<b>d</b>	is almost impossible

<b>195</b> id 6710	An OAT of -30°C at the 300 hPa pressure level:  <b>a</b> equals approximately (+/-5°C) ISA <b>b is high</b> <b>c</b> is low <b>d</b> is almost impossible
<b>196</b> id 6711	An OAT of -55°C at the 200 hPa pressure level:  <b>a equals approximately (+/-5°C) ISA</b> <b>b</b> is high <b>c</b> is low <b>d</b> is almost impossible
<b>197</b> id 6713	An aircraft cruises at FL 300 in an airmass, which is 15°C warmer than the Standard Atmosphere. The OAT is therefore....  <b>a</b> -60°C <b>b -30°C</b> <b>c</b> -45°C <b>d</b> -15°C
<b>198</b> id 6714	An aircraft cruises at FL 100 in an airmass, which is 10°C warmer than the Standard Atmosphere. The OAT is therefore....  <b>a</b> -10°C <b>b</b> -15°C <b>c +5°C</b> <b>d</b> +15°C
<b>199</b> id 6715	You cruise at FL 200 and notice an OAT of -35°C. The airmass has therefore an average temperature which is....  <b>a</b> 5°C warmer than ISA <b>b</b> 20°C colder than ISA <b>c 10°C colder than ISA</b> <b>d</b> 5°C colder than ISA
<b>200</b> id 6721	What is the ISA temperature at FL 110?  <b>a -7°C</b> <b>b</b> +7°C <b>c</b> 0°C <b>d</b> -5°C
<b>201</b> id 6723	What is the temperature decrease in the ISA?  <b>a 0,65°C/100 m</b> <b>b</b> 0,65°C/1000 ft <b>c</b> 2°C/100 m <b>d</b> 1°C/100 m

<b>202</b> id 6850	A temperature of 10°C above ISA is observed at FL 180. What is the effective distance between FL 60 and FL 120?
<b>a 6240 ft</b>	
<b>b 6000 ft</b>	
<b>c 5760 ft</b>	
<b>d 3000 ft</b>	

## 50.01.06. Altimetry

### 50.01.06.01. Pressure altitude, density altitude, true alt.

<b>203</b> id 715	You intend to overfly a mountain range. The recommended minimum flight altitude is, according to the aviation chart, 15000 FT/AMSL. The air mass that you will fly through is on average 15°C warmer than the standard atmosphere. The altimeter is set to QNH (1023 hPa). At what altimeter reading will you effectively be at the recommended minimum flight altitude?
<b>a 15900 FT.</b>	
<b>b 13830 FT.</b>	
<b>c 14370 FT.</b>	
<b>d 14100 FT.</b>	

<b>204</b> id 716	You are flying at FL 130, and your true altitude is 12000 FT. What is the temperature deviation from that of the standard atmosphere at FL 130 (QNH 1013,2 hPa) ?
<b>a ISA +12°C</b>	
<b>b ISA +/-0°C</b>	
<b>c ISA +20°C</b>	
<b>d ISA -20°C</b>	

<b>205</b> id 1912	The QNH of an airport at sea level is 983 hPa and the temperature deviation from ISA is -15°C below FL 100. What is the true altitude of FL 100?
<b>a 9790 FT.</b>	
<b>b 10210 FT.</b>	
<b>c 8590 FT.</b>	
<b>d 11410 FT.</b>	

<b>206</b> id 1915	You plan a flight over a mountain range at a true altitude of 15000 FT/AMSL. The air is on an average 15°C colder than ISA, the pressure at sea level is 1003 hPa. What indication must the altimeter (setting 1013.2 hPa) read?
<b>a 15690 FT.</b>	
<b>b 16170 FT.</b>	
<b>c 14370 FT.</b>	
<b>d 13830 FT.</b>	

<b>207</b> id 1916	During a flight at FL 100 from Marseille (QNH 1012 hPa) to Palma de Mallorca (QNH 1015 hPa), an aircraft remains at a constant true altitude. The reason for this is that :
<b>a the air at Marseille is colder than that at Palma de Mallorca.</b>	
<b>b the altimeters are erroneous, and need to be tested.</b>	
<b>c the air at Marseille is warmer than that at Palma de Mallorca.</b>	
<b>d one of the two QNH values may be incorrect.</b>	

208 id 2242	Which of the following conditions would cause the altimeter to indicate a lower altitude than that actually flown ?
	<ul style="list-style-type: none"> <li>a Pressure altitude the same as indicated altitude.</li> <li>b Atmospheric pressure lower than standard</li> <li><b>c Air temperature higher than standard</b></li> <li>d Air temperature lower than standard.</li> </ul>
209 id 2409	An aircraft flying at FL 100 from Marseille (QNH 1012 hPa) to Palma de Mallorca (QNH 1006 hPa) experiences no change to true altitude. The reason for this is that :
	<ul style="list-style-type: none"> <li>a the altimeters are erroneous, and need to be tested</li> <li>b the air at Palma de Mallorca is colder than that at Marseille</li> <li><b>c the air at Palma de Mallorca is warmer than that at Marseille</b></li> <li>d one of the two QNH values may be incorrect</li> </ul>
210 id 2410	During a flight over the sea at FL 100 from Marseille (QNH 1012 hPa) to Palma de Mallorca (QNH 1012 hPa), the true altitude is constantly increasing. What action, if any, should be taken ?
	<ul style="list-style-type: none"> <li><b>a None, the reason for the change is that the air around Palma is warmer than the air around Marseille</b></li> <li>b Have your altimeter checked, because its readings are obviously wrong</li> <li>c Recheck the QNH because one of the QNH values must be wrong</li> <li>d Compensate by heading further to the left</li> </ul>
211 id 2411	During a flight over the sea at FL 100 from Marseille (QNH 1016 hPa) to Palma de Mallorca (QNH 1016 hPa), the true altitude is constantly decreasing. What is the probable reason for this ?
	<ul style="list-style-type: none"> <li>a One of the QNH values must be wrong</li> <li><b>b The air at Marseille is warmer than that at Palma de Mallorca</b></li> <li>c The altimeter is faulty</li> <li>d The aircraft is being blown off track to the left</li> </ul>
212 id 2412	During a flight over the sea at FL 135, the true altitude is 13500 feet; local QNH is 1019 hPa. What information, if any, can be gained about the air mass in which the aircraft is flying?
	<ul style="list-style-type: none"> <li>a Its average temperature is the same as ISA</li> <li><b>b It is colder than ISA</b></li> <li>c It is warmer than ISA</li> <li>d There is insufficient information to make any assumption</li> </ul>
213 id 2413	An aircraft is flying over the sea at FL 90; the true altitude is 9100 feet; local QNH is unknown. What assumption, if any, can be made about the air mass in which the aircraft is flying ?
	<ul style="list-style-type: none"> <li>a It is colder than ISA</li> <li><b>b There is insufficient information to make any assumption</b></li> <li>c It is warmer than ISA</li> <li>d Its average temperature is the same as ISA</li> </ul>



214 id 2414	An aircraft is flying over the sea at FL 120, with a true altitude of 12000 feet; local QNH is 1013 hPa. What assumption, if any, can be made about the air mass in which the aircraft is flying ?
	<ul style="list-style-type: none"> <li>a It is warmer than ISA</li> <li>b It is colder than ISA</li> <li><b>c Its average temperature is the same as ISA</b></li> <li>d There is insufficient information to come to any conclusion</li> </ul>
215 id 2415	An aircraft is flying over the sea at FL 100, with a true altitude of 10000 feet; local QNH is 1003 hPa. What assumption, if any, can be made about the air mass in which the aircraft is flying ?
	<ul style="list-style-type: none"> <li>a There is insufficient information to come to any conclusion</li> <li>b Its average temperature is about ISA</li> <li>c It is colder than ISA</li> <li><b>d It is warmer than ISA</b></li> </ul>
216 id 2416	An aircraft is flying through the Alps on a very cold winter's day. The regional QNH is 1013 hPa. During the flight, you circle around a mountain at an altitude of its summit. What reading will the aneroid altimeter give, compared to the elevation of the summit?
	<ul style="list-style-type: none"> <li>a The same altitude as the elevation of the summit</li> <li>b A lower altitude than the elevation of the summit</li> <li><b>c A higher altitude than the elevation of the summit</b></li> <li>d There is insufficient information to come to a conclusion</li> </ul>
217 id 2417	An aircraft is flying through the Alps on a warm summer's day. The weather is fine, and there is a high pressure system in the area. During the flight, a mountain is passed at an altitude of its summit. What reading will the aneroid altimeter give, compared to the summit's elevation?
	<ul style="list-style-type: none"> <li>a There is insufficient information to come to a conclusion</li> <li>b A higher altitude than the elevation of the summit</li> <li>c The same altitude as the elevation of the summit</li> <li><b>d A lower altitude than the elevation of the summit</b></li> </ul>
218 id 2421	An aircraft is flying from Point A to Point B on the upper level contour chart. The altimeter setting is 1013,2 hPa. Which of these statements is correct?
	<ul style="list-style-type: none"> <li><b>a The true altitude will be higher at A than at B</b></li> <li>b The true altitude will be higher at B than at A</li> <li>c Wind speed at A is higher than at B</li> <li>d Wind speed at Paris is higher than at B</li> </ul>
219 id 2422	An aircraft is flying from Point A to Point B on the upper level contour chart. The altimeter setting is 1013,2 hPa. Which of these statements is correct?
	<ul style="list-style-type: none"> <li>a Wind speed at A and at B is the same</li> <li>b The true altitude will be higher at B than at A</li> <li>c Wind speed at A is higher than at B</li> <li><b>d The true altitude will be higher at A than at B</b></li> </ul>

220 id 2423	An aircraft is flying from Point A to Point B on the upper level contour chart. The altimeter setting is 1013,2 hPa. Which of these statements is correct?
	<p><b>a The true altitude will be higher at B than at A</b></p> <p>b The true altitude will be higher at A than at B</p> <p>c Wind speed at Madrid is higher than at A</p> <p>d Wind speed at B is higher than at A</p>
221 id 2424	An aircraft is flying from Point A to Point B on the upper level contour chart. The altimeter setting is 1013,2 hPa. Which of these statements is correct?
	<p>a The true altitude will be higher at A than at B</p> <p><b>b The true altitude will be higher at B than at A</b></p> <p>c Wind speed at A and at B is the same</p> <p>d Wind speed at B is higher than at A</p>
222 id 2425	You are flying at FL 200. Outside air temperature is -40°C, and the pressure at sea level is 1033 hPa. What is the true altitude?
	<p>a 20660 feet</p> <p><b>b 19340 feet</b></p> <p>c 21740 feet</p> <p>d 18260 feet</p>
223 id 2426	You are flying at FL 160. Outside air temperature is -27°C, and the pressure at sea level is 1003 hPa. What is the true altitude?
	<p>a 15630 feet</p> <p><b>b 15090 feet</b></p> <p>c 16370 feet</p> <p>d 16910 feet</p>
224 id 2427	You are planning to fly across a mountain range. The chart recommends a minimum altitude of 12000 feet above mean sea level. The air mass you will be flying through is an average 10°C warmer than ISA. Your altimeter is set to 1023 hPa (QNH of a nearby airport at nearly sea level). What altitude will the altimeter show when you have reached the recommended minimum altitude?
	<p>a 12210 feet</p> <p><b>b 11520 feet</b></p> <p>c 11250 feet</p> <p>d 11790 feet</p>
225 id 3994	The following temperatures have been observed over a station at 1200 UTC. Assume the station is at MSL. Height in feet. Temperature in degrees C. 20000.-12 18000.-11 16000.-10 14000.-10 12000.-6 10000.-2 8000. +2 6000. +6 4000. +12 2000. +15 surface+15.
	<p>a The layer between 16000 and 18000 FT is absolutely unstable</p> <p>b The height of the freezing level over the station is approximately 12000 FT.</p> <p>c The temperature at 10000 FT is in agreement with the temperature in the International Standard Atmosphere.</p> <p><b>d Assuming that the MSL pressure is 1013.25 hPa the true altitude of an aircraft would actually be higher than the indicated altitude.</b></p>

226 id 4131	Assume that an aircraft is flying in the northern hemisphere at the 500 hPa pressure surface on a heading of 270 degrees. Which of the following statements is correct?
	<ul style="list-style-type: none"> <li>a If in this pressure surface the wind comes from the direction 180 degrees, then true altitude is increasing</li> <li><b>b If in this pressure surface the wind comes from the direction 360 degrees, then true altitude is increasing</b></li> <li>c If in this pressure surface the wind comes from the direction 270 degrees, then true altitude is increasing</li> <li>d If in this pressure surface the wind comes from the direction 090 degrees, then true altitude is increasing</li> </ul>
227 id 4134	An aircraft is flying at FL 180 on the northern hemisphere with a crosswind from the left. Which of the following is correct concerning its true altitude ?
	<ul style="list-style-type: none"> <li>a It remains constant</li> <li>b It increases</li> <li><b>c It decreases</b></li> <li>d Without knowing temperatures at FL 180 this question can not be answered.</li> </ul>
228 id 4162	The pressure altitude is equal to the true altitude if
	<ul style="list-style-type: none"> <li>a the outside air temperature is standard for that height</li> <li><b>b standard atmospheric conditions occur</b></li> <li>c the air pressure is 1013.25 hPa at the surface</li> <li>d the indicated altitude is equal to the pressure altitude</li> </ul>
229 id 6456	The altimeter is connected to:
	<ul style="list-style-type: none"> <li>a The pitot tube.</li> <li>b The dynamic system.</li> <li><b>c The static system.</b></li> <li>d The elevator.</li> </ul>
230 id 6461	In spite of a constant altimeter reading your aircraft is losing altitude. This could be caused by:
	<ul style="list-style-type: none"> <li>a Flying towards high pressure.</li> <li><b>b Flying towards low pressure.</b></li> <li>c The standard air pressure has fallen.</li> <li>d Increased temperature.</li> </ul>
231 id 6583	An aircraft, flying so that the altimeter indicates 2500ft with the current regional QNH set in the subscale, is flying towards an area of lower pressure. If the pilot fails to revise the subscale setting as the QNH changes, then the aircraft will:
	<ul style="list-style-type: none"> <li>a Gradually climb</li> <li><b>b Gradually descend</b></li> <li>c Maintain 2500ft AMSL</li> <li>d no assumption is possible</li> </ul>

<b>232</b> id 6757	What condition would cause that your altimeter is indicating lower than actually flown?
	<ul style="list-style-type: none"> <li><b>a Temperature higher than standard</b></li> <li>b Temperature lower than standard</li> <li>c Standard temperature</li> <li>d Pressure lower than standard</li> </ul>
<b>233</b> id 6759	You fly over the sea at FL 90, TA 9100ft, QNH unknown. What can be assumed ?
	<ul style="list-style-type: none"> <li><b>a No assumption is possible, because the information is not sufficient</b></li> <li>b It is warmer than ISA</li> <li>c It is colder than ISA</li> <li>d The QNH is lower than 1013 hPa</li> </ul>
<b>234</b> id 6766	Your altimeter is blocked at 1000 hPa. You have to overfly a mountain (8000 ft) with a terrain clearance of at least 1500 ft. What will be your indicated altitude when the QNH of a nearby airport is 990 hPa and the temperature is 10C colder than ISA?
	<ul style="list-style-type: none"> <li><b>a 10150 ft</b></li> <li>b 10501 ft</li> <li>c 8850 ft</li> <li>d 9500 ft</li> </ul>
<b>235</b> id 6780	You are flying at FL 100 in an airmass which is 15°C colder than ISA, local QNH 983. True altitude?
	<ul style="list-style-type: none"> <li><b>a 8590 ft</b></li> <li>b 11'410 ft</li> <li>c 10'000 ft</li> <li>d 10'210 ft</li> </ul>
<b>236</b> id 6840	Refer to the upper level chart: Flight path A - B, altimeter setting 1013,2 hPa:
	<ul style="list-style-type: none"> <li>a Your true altitude is higher in B than in A</li> <li><b>b Your true altitude is higher in A than in B</b></li> <li>c The wind speed is higher in A than in B</li> <li>d The wind speed in A and in B is the same</li> </ul>
<b>237</b> id 6841	Refer to the upper level contour chart: Flight path A - B, altimeter setting 1013,2 hPa:
	<ul style="list-style-type: none"> <li><b>a Your true altitude is higher in B than in A</b></li> <li>b Your true altitude is higher in A than in B</li> <li>c The wind speed is higher in B than in A</li> <li>d The wind speed in A and in B is the same</li> </ul>
<b>238</b> id 6842	Refer to the constant pressure chart: Flight path A - B, altimeter setting 1013,2 hPa:
	<ul style="list-style-type: none"> <li><b>a Your true altitude is higher in B than in A</b></li> <li>b Your true altitude is higher in A than in B</li> <li>c The wind speed is higher in B than in A</li> <li>d The wind speed in A and in B is the same</li> </ul>

<b>239</b> id 6887	While mountain flying on a cold winter day, under fair weather conditions (QNH 1013 hPa), you circle a mountain of known height at peak elevation. Comparing to the elevation of the mountain, the aneroid altimeter of your aircraft will therefore indicate.....
	<b>a a higher altitude</b> b a lower altitude c peak elevation d cannot be determined
<b>240</b> id 6888	While mountain flying on a warm summer day under high pressure conditions, you circle a mountain of known height at peak elevation. Comparing to the indication of your altimeter, the peak elevation will therefore be....
	<b>a higher</b> b lower c equal d can not be determined
<b>241</b> id 6891	You are cruising at FL 200, OAT -40°C, sea level pressure 1033 hPa. Calculate the true altitude:
	a 20660 ft b 21740 ft c 18260 ft <b>d 19340 ft</b>
<b>242</b> id 6892	You intend to overfly a mountain ridge at an altitude of 15000 ft AMSL. The average air temperature is 15°C lower than ISA, the sea level pressure 1003 hPa. Which altimeter indication (standard setting) is needed?
	a 15630 ft b 14370 ft c 13830 ft <b>d 16170 ft</b>
<b>243</b> id 6893	You intend to overfly a mountain ridge. The recommended minimum altitude for overflight according to your ICAO chart is 12000 ft AMSL. The average air temperature is 10°C higher than ISA, your altimeter is set to the local QNH of 1023 hPa. Which altimeter indication is needed to maintain the recommended minimum altitude?
	a 11250 ft b 12210 ft <b>c 11520 ft</b> d 11790 ft
<b>244</b> id 6894	You have landed at an airport, local QNH 993 hPa. After landing, you notice, that your altimeter subscale is still set to 1013,2 hPa. Your altimeter indicates 1200 ft. What is the airport elevation?
	<b>a 660 ft AMSL</b> b 1740 ft AMSL c 2280 ft AMSL d 1200 ft AMSL

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**245** | You are cruising at FL 160 at an OAT of -27°C. The sea level pressure is 1003  
id 6895 | hPa. Your true altitude therefore is...

- a 15630 ft
- b 16370 ft
- c 16910 ft
- d **15090 ft**

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**246** | When the altimeter indicated 0 (zero) ft when the aircraft was parked for the night,  
id 6944 | and 1000 ft the following morning, this shows that:

- a **the barometric pressure has decreased by approx. 37 hPa**
- b the barometric pressure is constant, but the temperature has fallen during the night
- c a formation of fog has most probably taken place
- d the barometric pressure has increased by approx. 37 hPa

### 50.01.06.03. altimeter settings

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**247** | After landing at an aerodrome (aerodrome elevation 1715 FT), the altimeter  
id 714 | indicates an altitude of 1310 FT. The altimeter is set to the pressure value of 1013 hPa. What is the QNH at this aerodrome?

- a 1015 hPa.
- b **1028 hPa.**
- c 1013 hPa.
- d 998 hPa.

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**248** | What is the relationship, if any, between QFE and QNH at an airport situated 50 FT  
id 1914 | below sea level?

- a No clear relationship exists.
- b QFE is smaller than QNH.
- c QFE equals QNH.
- d **QFE is greater than QNH.**

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**249** | An aircraft lands at an airport (airport elevation 1240 FT, QNH 1008 hPa). The  
id 1917 | altimeter is set to 1013 hPa. The altimeter will indicate :

- a 1200 FT.
- b **1375 FT.**
- c 1105 FT.
- d 1280 FT.

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**250** | What pressure is defined as QFE?  
id 2083 |

- a The pressure reduced to sea level using actual temperatures
- b The pressure of the altimeter
- c **The pressure at field elevation**
- d The pressure reduced to sea level using ISA temperatures

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**251** | An aircraft is descending to land under IFR. If the local QNH is 1009 hPa, what will  
id 2418 | happen to the altitude reading when the altimeter is reset at the transition level ?

- a It will increase
- b **It will decrease**
- c It will remain the same
- d It will not be affected

252 id 2419	During the climb after takeoff, the altimeter setting is adjusted at the transition altitude. If the local QNH is 1023 hPa, what will happen to the altimeter reading during the resetting procedure ?
	<ul style="list-style-type: none"> <li>a It is not possible to give a definitive answer</li> <li>b It will increase</li> <li>c It will remain the same</li> <li><b>d It will decrease</b></li> </ul>
253 id 2420	During the climb after takeoff, the altimeter setting is adjusted at the transition altitude. If the local QNH is 966 hPa, what will happen to the altimeter reading during the resetting procedure?
	<ul style="list-style-type: none"> <li>a It will decrease</li> <li><b>b It will increase</b></li> <li>c It will remain the same</li> <li>d It is not possible to give a definitive answer</li> </ul>
254 id 2428	An aircraft lands at an airport (airport elevation 540 FT, QNH 993 hPa) with the altimeter set to 1013 hPa. What will it indicate ?
	<ul style="list-style-type: none"> <li><b>a 1080 FT</b></li> <li>b 700 FT</li> <li>c 380 FT</li> <li>d 0 FT</li> </ul>
255 id 2429	After landing at an aerodrome (QNH 993 hPa) it is noticed that the altimeter is still set to 1013,2 hPa and that it reads 1200 feet. What is the elevation of the aerodrome above mean sea level ?
	<ul style="list-style-type: none"> <li><b>a 660 feet.</b></li> <li>b 1200 feet.</li> <li>c 1740 feet.</li> <li>d 2280 feet.</li> </ul>
256 id 2547	An altimeter adjusted to 1013 hPa indicates an altitude of 3600 FT. Should this altimeter be adjusted to the local QNH value of 991 hPa, the altitude indicated would be
	<ul style="list-style-type: none"> <li>a 2922 FT.</li> <li><b>b 3006 FT.</b></li> <li>c 4278 FT.</li> <li>d 4194 FT.</li> </ul>
257 id 2548	In Geneva, the local QNH is 994 hPa. The elevation of Geneva is 1411 FT. The QFE adjustment in Geneva is
	<ul style="list-style-type: none"> <li><b>a 942 hPa.</b></li> <li>b 967 hPa.</li> <li>c 961 hPa.</li> <li>d 948 hPa.</li> </ul>
258 id 2549	An aircraft is flying at FL 80. The local QNH is 1000 hPa. After the second altimeter has been adjusted to the local QNH, the reading will be approximately
	<ul style="list-style-type: none"> <li><b>a 7650 FT.</b></li> <li>b 8600 FT.</li> <li>c 8350 FT.</li> <li>d 8000 FT.</li> </ul>

<b>259</b> id 2550	<p>The barometric compensator of an altimeter is locked on reference 1013.2 hPa.</p> <p>The aircraft has to land on a point with an elevation of 290 feet where the QNH is 1023 hPa. Assuming that 1 hPa corresponds to 27 FT, the reading on the altimeter on the ground will be:</p> <p><b>a 20 FT.</b></p> <p>b 11 FT.</p> <p>c -10 FT.</p> <p>d 560 FT.</p>
<b>260</b> id 3611	<p>Which of the following statements is true ?</p> <p>a QNH is always higher than QFE</p> <p>b QNH is always lower than QFE</p> <p><b>c QNH can be equal to QFE</b></p> <p>d QNH is always equal to QFE</p>
<b>261</b> id 3612	<p>Which statement is true ?</p> <p>a QNH can be 1013.25 only for a station at MSL</p> <p>b QNH can not be 1013.25 hPa</p> <p>c QNH is lower than 1013.25 hPa at any time</p> <p><b>d QNH can be lower as well as higher than 1013.25 hPa</b></p>
<b>262</b> id 3613	<p>When the subscale is set to the QNH of an airfield the pressure altimeter indicates</p> <p>a zero while landing</p> <p><b>b elevation while landing</b></p> <p>c elevation while landing only if conditions are as in the International Standard Atmosphere</p> <p>d zero while landing only if conditions are as in the International Standard Atmosphere</p>
<b>263</b> id 4160	<p>The QNH is equal to the QFE if</p> <p>a <math>T_{\text{actual}} &lt; T_{\text{standard}}</math></p> <p>b <math>T_{\text{actual}} = T_{\text{standard}}</math></p> <p>c <math>T_{\text{actual}} &gt; T_{\text{standard}}</math></p> <p><b>d the elevation = 0</b></p>
<b>264</b> id 4161	<p>Which of the following conditions gives the highest value of the QNH?</p> <p>a QFE = 1003 hPa, elevation = 1200 FT (366m)</p> <p>b QFE = 1000 hPa, elevation = 1200 FT (366m)</p> <p><b>c QFE = 995 hPa, elevation = 1600 FT (488m)</b></p> <p>d QFE = 995 hPa, elevation = 1200 FT (366m)</p>
<b>265</b> id 4163	<p>You must make an emergency landing at sea. The QNH of a field on a nearby island with an elevation of 4000 FT is 1025 hPa and the temperature is -20°C. What is your pressure altimeter reading when landing if 1025 hPa is set in the subscale?</p> <p><b>a Less than 0 FT</b></p> <p>b 0 FT</p> <p>c More than 0 FT, but less than 4000 FT</p> <p>d 4000 FT</p>



<b>266</b> id 4173	For a given airfield the QFE is 980 hPa and the QNH is 1000 hPa. The approximate elevation of the airfield is
	<ul style="list-style-type: none"> <li>a 120 metres</li> <li>b 600 metres</li> <li>c 540 metres</li> <li><b>d 160 metres</b></li> </ul>
<b>267</b> id 5551	Before landing, an altimeter set to QFE indicates
	<ul style="list-style-type: none"> <li>a the height of the aircraft's wheels above the runway.</li> <li>b the flight level.</li> <li>c the aircraft's altitude above the mean sea level.</li> <li><b>d in standard atmosphere, the height of the aircraft above the official airport elevation.</b></li> </ul>
<b>268</b> id 6463	What altimeter reading would you expect when landing at an airfield 3000 ft above MSL, altimeter setting is QFE for the field and local temperature is + 25°C?
	<ul style="list-style-type: none"> <li>a 3300 ft.</li> <li>b 3000 ft.</li> <li>c 2700 ft.</li> <li><b>d 0 ft.</b></li> </ul>
<b>269</b> id 6465	The temperature is -15°C on an airport 3000' above mean sea level. Which of the following statements is correct ?
	<ul style="list-style-type: none"> <li><b>a QFF &gt; QNH</b></li> <li>b QFF = QFE</li> <li>c QFF = QNH</li> <li>d QNH = QFE</li> </ul>
<b>270</b> id 6468	Which of altimeter settings is used when flying in flight levels ?
	<ul style="list-style-type: none"> <li><b>a 1013,25 hPa.</b></li> <li>b 1025,13 hPa.</li> <li>c QFF.</li> <li>d QFE.</li> </ul>
<b>271</b> id 6727	While passing the Transition Level, you set the subscale on your altimeter to the local QNH of 1009 hPa:
	<ul style="list-style-type: none"> <li><b>a Your indicated altitude decreases</b></li> <li>b Your indicated altitude increases</li> <li>c A statement is not possible without the knowledge of the exact OAT</li> <li>d Your setting is wrong, the subscale must be set to 1013,2 hPa</li> </ul>
<b>272</b> id 6728	On takeoff, your altimeter is set to the local QNH of 1023 hPa. While passing the Transition Altitude, you adjust the subscale accordingly:
	<ul style="list-style-type: none"> <li><b>a Your indicated altitude decreases</b></li> <li>b Your indicated altitude increases</li> <li>c A statement is not possible without the knowledge of the exact OAT</li> <li>d The altimeter setting must remain at 1023 hPa</li> </ul>

<b>273</b> id 6765	<p>You observe the altimeter in a parked aircraft while a cold front passes the airport. What does the altimeter indicate?</p> <p>a It first decreases and then increases</p> <p><b>b It first increases and then decreases</b></p> <p>c It is not affected by a pressure change</p> <p>d The pressure changes are very small and therefore, there is no visible change of the indication</p>
<b>274</b> id 6889	<p>You have landed on an airport (elevation 1240 ft, QNH 1008 hPa). Your altimeter subscale is erroneously set to 1013 hPa. Therefore, the indication will be:</p> <p>a 1105 ft</p> <p>b 1200 ft</p> <p><b>c 1375 ft</b></p> <p>d 1280 ft</p>
<b>275</b> id 6890	<p>You have landed on an airport (elevation 540 ft, QNH 993 hPa). Your altimeter subscale is erroneously set to 1013 hPa. Therefore, the indication will be:</p> <p>a 0 ft</p> <p>b 380 ft</p> <p><b>c 1080 ft</b></p> <p>d 700 ft</p>
<b>276</b> id 6904	<p>Your altimeter indicates 3600 ft, while set to standard pressure. You now adjust the subscale to the local QNH of 991 hPa. What will the indication be?</p> <p><b>a 3006 ft</b></p> <p>b 4194 ft</p> <p>c 3600 ft</p> <p>d 3320 ft</p>
<b>277</b> id 6942	<p>When the barometric subscale of the altimeter is adjusted to 1013,2 hPa, what type of altitude is being measured?</p> <p><b>a Pressure altitude</b></p> <p>b Indicated altitude</p> <p>c True altitude</p> <p>d Relative height</p>
<b>278</b> id 6943	<p>You are departing an aerodrome (600 ft AMSL, QNH 1012 hPa) and proceed to another airfield (195 ft AMSL) with the same QNH. After landing, which barometric setting on the altimeter makes it again indicate 600 ft?</p> <p>a 997</p> <p>b 1032</p> <p>c 992</p> <p><b>d 1027</b></p>
<b>279</b> id 6945	<p>Without readjusting the barometric setting of the altimeter, it will under-read when:</p> <p>a flying from a high pressure area into a low pressure area</p> <p>b flying in headwind with constant barometric pressure</p> <p>c flying in tailwind with constant barometric pressure</p> <p><b>d flying from a low pressure area into a high pressure area</b></p>

#### 50.01.06.04. Calc. of terrain clearance, lowest usable fl

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**280**  
id 136 If atmospheric conditions exist such that the temperature deviation is ISA +10°C in the lower troposphere up to 18000 FT, what is the actual layer thickness between FL 60 and FL 120 ?

- a **6240 FT.**
- b 6000 FT.
- c 5900 FT.
- d 5760 FT.

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**281**  
id 1201 Which weather condition lowers true altitude as compared to pressure altitude to a position where flight over mountains could be dangerous?

- a Cold high.
- b Warm depression.
- c **Cold low.**
- d Warm high.

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**282**  
id 1499 A vertical spacing of 1000 FT, is the standard required separation between two FL. Under conditions of cold air advection (ISA -15°C), what would the true vertical separation be?

- a More than 1000 FT
- b It remains 1000 FT
- c **Less than 1000 FT**
- d Without QNH information, it can not be determined

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**283**  
id 1500 At which pressure and temperature conditions may you safely assume that the minimum usable flight level at least lies at the same height, as the minimum safe altitude?

- a In a cold low pressure region
- b **At a temperature greater than or equal to that of the ISA and where the QNH is greater than or equal to 1013 hPa**
- c At a temperature less than or equal to that of the ISA and where the QNH is less than 1013 hPa
- d In a warm high pressure region

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**284**  
id 1913 What information is required to convert a minimum safe altitude into a lowest usable flight level?

- a **Lowest value of QNH and the highest negative temperature deviation from ISA.**
- b Highest value of QNH and the highest negative temperature deviation from ISA.
- c Highest value of QNH and the highest positive temperature deviation from ISA
- d Lowest value of QNH and the lowest negative temperature deviation from ISA

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**285**  
id 6946 An aircraft is in level flight at FL100 over a mountain range, which extends up to 2400 metres AMSL. If the regional QNH is 998 hPa, what is the approximate terrain clearance?

- a 2536 feet
- b **1636 feet**
- c 7821 feet
- d 405 feet

## 50.02. WIND

### 50.02.01. Definition and measurement

#### 50.02.01.01. Definition and measurement

<b>286</b> id 2430	What is the approximate speed of a 25-knot wind, expressed in kilometres per hour?
<b>a</b> 60 km/h	
<b>b</b> 35 km/h	
<b>c</b> 55 km/h	
<b>d</b> 45 km/h	
<b>287</b> id 2431	What is the approximate speed of a 90 km/h wind, expressed in knots?
<b>a</b> 55 kt	
<b>b</b> 50 kt	
<b>c</b> 60 kt	
<b>d</b> 70 kt	
<b>288</b> id 2432	What is the approximate speed of a 40-knot wind, expressed in m/sec?
<b>a</b> 25 m/sec	
<b>b</b> 15 m/sec	
<b>c</b> 20 m/sec	
<b>d</b> 30 m/sec	
<b>289</b> id 4165	What values are used for the forecasted wind at higher levels?
<b>a</b> Direction relative to grid north and speed in kmh	
<b>b</b> Direction relative to magnetic north and speed in knots	
<b>c</b> Direction relative to magnetic north and speed in kmh	
<b>d</b> Direction relative to true north and speed in knots	
<b>290</b> id 6401	Evaporation is the change of:
<b>a</b> Liquid water to water vapor.	
<b>b</b> Water vapor to ice.	
<b>c</b> Invisible water vapor to liquid water.	
<b>d</b> Ice directly to water vapor.	
<b>291</b> id 6402	Water droplets often condense or persist at temperature colder than 0°C. What are water droplets called which are colder than 0°C ?
<b>a</b> Super-heated water droplets.	
<b>b</b> Supercooled water droplets.	
<b>c</b> Ice.	
<b>d</b> None of the above.	

292 id 6419	The direction of the gradient force is?
	<ul style="list-style-type: none"> <li>a Towards high pressure</li> <li><b>b Towards low pressure</b></li> <li>c Parallel to the isobars</li> <li>d Same direction as the friction force</li> </ul>
293 id 6422	Which precipitation type normally indicates freezing rain at some altitude above the ground?
	<ul style="list-style-type: none"> <li>a Snow.</li> <li>b Hail.</li> <li><b>c Ice pellets.</b></li> <li>d Ice crystals.</li> </ul>
294 id 6430	Thermal turbulence is caused by:
	<ul style="list-style-type: none"> <li>a Wing-tip vortices.</li> <li><b>b Vertical movements due convection flow in unstable air.</b></li> <li>c Deviations due to mountain terrain.</li> <li>d Smooth air movements upon smooth substratum.</li> </ul>
295 id 6432	What relationship exists between the winds at 2000 ft above the surface and the surface winds ?
	<ul style="list-style-type: none"> <li>a The winds at 2000 ft and the surface winds flow in the same direction, but the surface winds are weaker due to friction.</li> <li>b The winds at 2000 ft and the surface winds are approximately the same except when eddies form due to obstructions.</li> <li><b>c The winds at 2000 ft tend to parallel the isobars while the surface winds cross the isobars at an angle toward lower pressure and are weaker.</b></li> <li>d The surface winds tend to veer to the right of the winds at 2000 ft and are visually weaker.</li> </ul>
296 id 6433	Possible mountain wave turbulence should be anticipated in cases where windspeeds of
	<ul style="list-style-type: none"> <li>a 20 kts. or greater blow across a mountain ridge, and the air is unstable.</li> <li><b>b 25 kts. or greater blow across a mountain ridge, and the air is stable.</b></li> <li>c 25 kts. or greater blow down a mountain valley, and the air is unstable.</li> <li>d 25 kts. or greater blow parallel to a mountain peak, and the air is stable.</li> </ul>
297 id 6435	Winds at 5000' AGL on a particular flight are south-westerly while most of the surface winds are southerly. The difference in direction is primarily due to:
	<ul style="list-style-type: none"> <li>a A stronger pressure gradient at higher altitudes.</li> <li><b>b Friction between the wind and the surface.</b></li> <li>c Stronger Coriolis force at the surface.</li> <li>d The influence of pressure systems at the lower altitudes.</li> </ul>
298 id 6436	Which force, in the Northern Hemisphere, acts at a right angle to the wind and deflects it to the right until parallel to the isobars ?
	<ul style="list-style-type: none"> <li>a Centrifugal.</li> <li>b Pressure gradient.</li> <li><b>c Coriolis.</b></li> <li>d Advection.</li> </ul>

<b>299</b> id 6442	A trough is a:  <b>a kind of low pressure.</b> b high pressure ridge. c tropical thunderstorm. d tropical wind.
<b>300</b> id 6445	In the Northern Hemisphere the surface wind is blowing around a low pressure:  <b>a anti-clockwise, oblique to the isobars towards the low pressure centre.</b> b parallel to the isobars. c across the isobars. d opposite the situation described in a).
<b>301</b> id 6446	Characteristic of a cold air mass is:  a Precipitation (drizzle). b Extensive fog. <b>c Showers and gusty winds.</b> d Strong and smooth winds.
<b>302</b> id 6447	Due to the diurnal variations of temperature the following types of wind arise:  <b>a Sea and land breeze.</b> b Trade-winds. c Monsoon winds. d Anabatic winds.
<b>303</b> id 6474	An autumn day with rain showers and terminated by evening clear sky will be followed in the next morning by:  a Advection fog. <b>b Radiation fog.</b> c Orographic fog. d Frontal fog.
<b>304</b> id 6488	What causes surface winds to flow across the isobars at an angle rather than parallel to the isobars ?  a Coriolis force. <b>b Surface friction.</b> c The greater density of the air at the surface. d The greater atmospheric pressure at the surface.
<b>305</b> id 6492	A high pressure (or anticyclone) is characterized by:  a The wind is blowing anticlockwise around the high pressure on the Northern Hemisphere. b The wind is blowing anticlockwise around the high pressure on the Southern Hemisphere. c The wind in the friction layer is blowing at an oblique angle and out from the high pressure in relation to the isobars. <b>d Both b) and c) are correct.</b>

<b>306</b> id 6497	In a low pressure:
	<ul style="list-style-type: none"> <li>a The isobars are found in closed and more or less oval circles around the lowest pressure.</li> <li>b The isobars are often closer to each other than around a high pressure.</li> <li>c The wind will tend to be stronger with increasing altitude and also blow more parallel to the isobars.</li> <li><b>d a) , b) and c) are all correct</b></li> </ul>
<b>307</b> id 6499	Which clouds have the greatest turbulence ?
	<ul style="list-style-type: none"> <li>a Towering cumulus.</li> <li><b>b Cumulonimbus.</b></li> <li>c Nimbostratus.</li> <li>d Altocumulus castellanus.</li> </ul>
<b>308</b> id 6504	Define low pressure:
	<ul style="list-style-type: none"> <li><b>a An area with lower pressure than that of the environments.</b></li> <li>b An area of convergence.</li> <li>c A trough.</li> <li>d None of the above.</li> </ul>
<b>309</b> id 6505	Define high pressure:
	<ul style="list-style-type: none"> <li><b>a An area with higher pressure than that of the environments.</b></li> <li>b A high pressure ridge.</li> <li>c An area of divergence.</li> <li>d Non of the above.</li> </ul>
<b>310</b> id 6508	List the two forces in balance in a geostrophic wind:
	<ul style="list-style-type: none"> <li>a Pressure force and friction force.</li> <li>b Centrifugal force and friction force.</li> <li><b>c Gradient force and Coriolis force.</b></li> <li>d Coriolis force and centrifugal force.</li> </ul>
<b>311</b> id 6511	The expression "Mechanical turbulence" means:
	<ul style="list-style-type: none"> <li>a "Wake turbulence".</li> <li><b>b That the terrain or other obstructions interfering with the airflow.</b></li> <li>c Vertical movements in unstable air.</li> <li>d That you experience "finger trouble".</li> </ul>
<b>312</b> id 6513	The mechanical turbulence will increase when:
	<ul style="list-style-type: none"> <li>a Flying from land to sea.</li> <li>b temperature falls.</li> <li>c pressure rises.</li> <li><b>d the wind increases.</b></li> </ul>

<b>313</b> id 6518	What are trade winds?
	<ul style="list-style-type: none"> <li><b>a The wind zones towards the Intertropical Convergence Zone.</b></li> <li>b The westerly wind zones.</li> <li>c The polar easterly winds.</li> <li>d Foen winds in alpine valleys.</li> </ul>
<b>314</b> id 6522	Mention one of the characteristics of the Monsoons:
	<ul style="list-style-type: none"> <li>a Daily change of wind direction.</li> <li><b>b Yearly change of wind direction.</b></li> <li>c The wind blowing from one direction all the year.</li> <li>d The wind blowing along the 40° south, from the west towards the east.</li> </ul>
<b>315</b> id 6525	Describe the change of wind through the friction layer from the ground and up:
	<ul style="list-style-type: none"> <li>a Decreased force and "veering".</li> <li><b>b Increased force and "veering".</b></li> <li>c Increased force and "backing"</li> <li>d Increased force and turning 180°</li> </ul>
<b>316</b> id 6532	How does the geostrophic wind force change with latitude?
	<ul style="list-style-type: none"> <li>a Increase with increasing latitude to a certain latitude.</li> <li>b Decrease with increasing latitude to a certain latitude.</li> <li><b>c Increase with decreasing latitude.</b></li> <li>d Latitude does not affect wind force.</li> </ul>
<b>317</b> id 6548	Fog which reaches only 2 metres above ground or 10 metres above the sea is called:
	<ul style="list-style-type: none"> <li>a Smog.</li> <li>b Mist.</li> <li>c Drifting fog.</li> <li><b>d Shallow fog.</b></li> </ul>
<b>318</b> id 6561	If you are flying into an area of low pressure, what drift would you expect to experience in the northern hemisphere?
	<ul style="list-style-type: none"> <li><b>a Right drift</b></li> <li>b None</li> <li>c Left drift</li> <li>d Ice directly to water vapor.</li> </ul>
<b>319</b> id 6564	In contrast to brief showers, prolonged precipitation preceding a front is most likely to be related to:
	<ul style="list-style-type: none"> <li>a Stratiform clouds with moderate turbulence</li> <li>b Cumuliform cloud with little or no turbulence</li> <li><b>c Shallow stratiform clouds with little or no turbulence</b></li> <li>d</li> </ul>



<b>320</b> id 6569	The wind which results from air cooling on the side of a valley is known as:
<b>a A katabatic wind</b>	
b A valley wind	
c An anabatic wind	
d	
<b>321</b> id 6570	When flying in a sub-zero 0°C airmass, into which rain is falling, which of the following is most likely?
a Hoar frost	
b Hail	
<b>c Freezing rain</b>	
d	
<b>322</b> id 6585	A wind who has changed clockwise in direction can be said to have:
a Reduced	
b Backed	
<b>c Veered</b>	
d Advanced	
<b>323</b> id 6587	If the wind at altitude is 24035KT, the most likely wind on the surface at an inland airfield is:
a 27040KT	
<b>b 22020KT</b>	
c 22040KT	
d	
<b>324</b> id 6594	There is a natural tendency for air to flow from areas of:
<b>a High pressure to low pressure</b>	
b Low pressure to high pressure	
c Mountainous areas to flat areas	
d Flat terrain towards the sea	
<b>325</b> id 6599	With respect to high and low pressure systems:
a A high pressure area or ridge is an area of rising air	
<b>b A high pressure area or ridge is an area of descending air</b>	
c A low pressure area or trough is an area of descending air	
d	
<b>326</b> id 6600	With respect to high and low pressure systems:
<b>a A low pressure area or trough is an area of rising air</b>	
b A high pressure area or ridge is an area of rising air	
c A low pressure area or trough is an area of descending air	
d	

<b>327</b> id 6603	What is the term used to describe streamers of precipitation trailing beneath clouds, but evaporating before reaching the ground:
	<ul style="list-style-type: none"> <li>a Foehn</li> <li><b>b Virga</b></li> <li>c Dissipation trails</li> <li>d</li> </ul>
<b>328</b> id 6606	In the northern hemisphere an aircraft flying directly from low to high pressure would expect to experience:
	<ul style="list-style-type: none"> <li>a No drift</li> <li>b Right drift</li> <li><b>c Left drift</b></li> <li>d</li> </ul>
<b>329</b> id 6622	Which statement is true?
	<ul style="list-style-type: none"> <li>a The general visibility associated with a cold front is worse than the visibility associated with a warm front</li> <li>b The general visibility associated with a cold front is the same than the visibility associated with a warm front</li> <li><b>c The general visibility associated with a cold front is better than the visibility associated with a warm front</b></li> <li>d</li> </ul>
<b>330</b> id 6623	A V-shaped extension of a low pressure area is called a:
	<ul style="list-style-type: none"> <li>a Ridge</li> <li>b Col</li> <li><b>c Trough</b></li> <li>d Occlusion</li> </ul>
<b>331</b> id 6628	If you stand with your back to the wind in the northern hemisphere, the low pressure will be:
	<ul style="list-style-type: none"> <li><b>a On your left</b></li> <li>b On your right</li> <li>c Behind you</li> <li>d Ahead of you</li> </ul>
<b>332</b> id 6629	The wind at the surface is 24015KT. What is it most likely to be at 2000ft?
	<ul style="list-style-type: none"> <li>a 22025KT</li> <li><b>b 26025KT</b></li> <li>c 28015KT</li> <li>d</li> </ul>
<b>333</b> id 6639	What prevents air from flowing directly from high to low pressure areas over western Europe?
	<ul style="list-style-type: none"> <li><b>a Coriolis force</b></li> <li>b Surface friction</li> <li>c Pressure gradient force</li> <li>d The presence of occlusions</li> </ul>

<b>334</b> id 6640	The general circulation of air associated with a high pressure area in the northern hemisphere is:
	<ul style="list-style-type: none"> <li>a Inward, downward and counter clockwise</li> <li>b Outward, upward and clockwise</li> <li><b>c Outward, downward and clockwise</b></li> <li>d</li> </ul>
<b>335</b> id 6641	The general circulation of air associated with a low pressure area in the northern hemisphere is:
	<ul style="list-style-type: none"> <li><b>a Inward, upward and counter clockwise</b></li> <li>b Inward, upward and clockwise</li> <li>c Outward, downward and clockwise</li> <li>d Inward, downward and counter clockwise</li> </ul>
<b>336</b> id 6650	What is a feature of air movement in a high pressure area?
	<ul style="list-style-type: none"> <li>a Ascending from the surface high to lower pressure at higher altitudes</li> <li><b>b Descending to the surface and the outward</b></li> <li>c Moving outward from the high at high altitudes and into the high at the surface</li> <li>d</li> </ul>
<b>337</b> id 6651	At lower levels of the atmosphere, friction causes the wind to flow across isobars into a low because the friction
	<ul style="list-style-type: none"> <li><b>a decreases wind speed and Coriolis force</b></li> <li>b decreases pressure gradient force</li> <li>c creates air turbulence and raises atmospheric pressure</li> <li>d</li> </ul>
<b>338</b> id 6652	At which location does Coriolis force have the least effect on wind direction?
	<ul style="list-style-type: none"> <li>a At the poles</li> <li>b Middle latitudes (30° to 60°)</li> <li><b>c At the Equator</b></li> <li>d</li> </ul>
<b>339</b> id 6653	How does Coriolis force affect wind direction in the Southern Hemisphere?
	<ul style="list-style-type: none"> <li><b>a Causes clockwise rotation around a low</b></li> <li>b Causes wind to flow out of a low toward a high</li> <li>c Has exactly the same effect as in the Northern Hemisphere</li> <li>d</li> </ul>
<b>340</b> id 6654	Which weather condition is defined as an anticyclone?
	<ul style="list-style-type: none"> <li>a Calm</li> <li><b>b High pressure area</b></li> <li>c Col</li> <li>d</li> </ul>

<b>341</b> id 6662	What term describes an elongated area of low pressure?
	<ul style="list-style-type: none"> <li><b>a Trough</b></li> <li>b Ridge</li> <li>c Hurricane or typhoon</li> <li>d</li> </ul>
<b>342</b> id 6664	Which event usually occurs after an aircraft passes through a front into the colder air?
	<ul style="list-style-type: none"> <li>a Temperature/dewpoint spread decreases</li> <li>b Wind direction shifts to the left</li> <li><b>c Atmospheric pressure increases</b></li> <li>d</li> </ul>
<b>343</b> id 6665	Which atmospheric factor causes rapid movement of surface fronts?
	<ul style="list-style-type: none"> <li><b>a Upper winds blowing across the front.</b></li> <li>b Upper low located directly over the surface low.</li> <li>c The cold front overtaking and lifting the warm front</li> <li>d</li> </ul>
<b>344</b> id 6666	In which meteorological conditions can frontal waves and low pressure areas form?
	<ul style="list-style-type: none"> <li>a Warm fronts or occluded fronts</li> <li><b>b Slow-moving cold fronts or stationary fronts</b></li> <li>c Cold front occlusions</li> <li>d</li> </ul>
<b>345</b> id 6736	How is wind measured?
	<ul style="list-style-type: none"> <li><b>a 8-10 m above the ground on a mast with an anemometer</b></li> <li>b 2 m above the ground in a weather shelter</li> <li>c 2 m above the ground on a mast with an anemometer</li> <li>d 8-10 m above the ground on a mast with a pluviometer</li> </ul>
<b>346</b> id 6743	What pressure does an observer at point A encounter in the next hour?
	<ul style="list-style-type: none"> <li><b>a Rising pressure</b></li> <li>b Falling pressure</li> <li>c A pressure rise first, then an immediate pressure drop</li> <li>d No substantial pressure change</li> </ul>
<b>347</b> id 6744	What pressure does an observer at point B encounter in the next hour?
	<ul style="list-style-type: none"> <li>a Rising pressure</li> <li>b Falling pressure</li> <li>c A pressure rise first, then an immediate pressure drop</li> <li><b>d No substantial pressure change</b></li> </ul>

<b>348</b> id 6745	What pressure does an observer at point C encounter in the next hour?
	<ul style="list-style-type: none"> <li>a Rising pressure</li> <li><b>b Falling pressure</b></li> <li>c A pressure rise first, then an immediate pressure drop</li> <li>d No substantial pressure change</li> </ul>
<b>349</b> id 6746	What temperature does an observer at point C encounter in the next hour?
	<ul style="list-style-type: none"> <li><b>a The temperature increases</b></li> <li>b The temperature decreases</li> <li>c The temperature first increases and then decreases</li> <li>d No substantial temperature change</li> </ul>
<b>350</b> id 6747	What temperature does an observer at point B encounter in the next hour?
	<ul style="list-style-type: none"> <li>a The temperature increases</li> <li>b The temperature decreases</li> <li>c The temperature first increases and then decreases</li> <li><b>d No substantial temperature change</b></li> </ul>
<b>351</b> id 6748	What temperature does an observer at point A encounter in the next hour?
	<ul style="list-style-type: none"> <li>a The temperature increases</li> <li><b>b The temperature decreases</b></li> <li>c The temperature first increases and then decreases</li> <li>d No substantial temperature change</li> </ul>
<b>352</b> id 6751	What is the name of the low level winds between the subtropical high pressure belt and the ITCZ?
	<ul style="list-style-type: none"> <li>a Monsoon</li> <li><b>b Trade winds</b></li> <li>c Easterly wave</li> <li>d Low level jetstream</li> </ul>
<b>353</b> id 6756	What is the most frequent wind in valleys, caused by thermal effects?
	<ul style="list-style-type: none"> <li>a Mountain breeze by day</li> <li>b Mountain breeze by night</li> <li><b>c Valley breeze by day</b></li> <li>d Valley breeze by night</li> </ul>
<b>354</b> id 6760	What does zone A depict?
	<ul style="list-style-type: none"> <li><b>a A trough</b></li> <li>b A ridge</li> <li>c The warm sector</li> <li>d The cold front</li> </ul>

<b>355</b> id 6761	Refer to the picture by pressing the "DLP" button: What does zone B depict?
<ul style="list-style-type: none"> <li>a A trough</li> <li>b A ridge</li> <li>c The warm sector</li> <li><b>d The cold front</b></li> </ul>	
<b>356</b> id 6762	Refer to the picture by pressing the "DLP" button: What does zone C depict?
<ul style="list-style-type: none"> <li>a A trough</li> <li>b A ridge</li> <li><b>c The warm sector</b></li> <li>d The cold front</li> </ul>	
<b>357</b> id 6767	What can you expect at FL 180, when the wind is geostrophic and your true altitude is 18'000 ft?
<ul style="list-style-type: none"> <li>a Crosswind from the right</li> <li>b Crosswind from the left</li> <li><b>c No crosswind</b></li> <li>d None of the above</li> </ul>	
<b>358</b> id 6778	Where can a jetstream be observed?
<ul style="list-style-type: none"> <li><b>a On a Significant Weather Chart (SWC)</b></li> <li>b On a high level pressure chart</li> <li>c On a surface chart</li> <li>d All of the above</li> </ul>	
<b>359</b> id 6779	What can on a Significant Weather Chart be depicted?
<ul style="list-style-type: none"> <li><b>a The speed and direction of a surface front</b></li> <li>b The speed and direction of an upper front</li> <li>c The amount of rain in a certain area</li> <li>d The actual weather situation</li> </ul>	
<b>360</b> id 6784	What cloud type is prone to +RA?
<ul style="list-style-type: none"> <li><b>a NS</b></li> <li>b AS</li> <li>c CC</li> <li>d ST</li> </ul>	
<b>361</b> id 6785	When is heavy precipitation unlikely?
<ul style="list-style-type: none"> <li><b>a In summer, with SC and AC clouds</b></li> <li>b In summer, with CB and CU clouds</li> <li>c In spring and autumn, with NS and CB clouds</li> <li>d In winter, with CB clouds</li> </ul>	

<b>362</b> id 6786	The precipitation form +TSRA is most probably related to the following cloud type:
<b>a CB</b>	
<b>b CU</b>	
<b>c NS</b>	
<b>d CC</b>	
<b>363</b> id 6801	What happens when you descend from 2000 ft to the surface, when no fronts are present?
<b>a The wind backs and decreases</b>	
<b>b The wind veers and decreases</b>	
<b>c The wind veers and increases</b>	
<b>d The wind backs and the wind speed remains more or less constant</b>	
<b>364</b> id 6820	A trough of low pressure on a surface synoptic chart.....
<b>a is an area of convergence and widespread ascent</b>	
<b>b is an area of divergence and widespread ascent</b>	
<b>c leads to descending air masses</b>	
<b>d is a narrow band of ascent</b>	
<b>365</b> id 6828	Name the conditions for the formation of radiation fog:
<b>a Flat landscape, a clear night, no wind conditions</b>	
<b>b Over the sea with a 20KT wind</b>	
<b>c Mountainous terrain with winds of approx. 10 KT, overcast skies</b>	
<b>d Flat landscape, a clear night, winds of 10-20KT</b>	
<b>366</b> id 6834	You fly from east to west at the 500 hPa level in the Northern hemisphere:
<b>a If the wind is from the North, there is a gain in altitude</b>	
<b>b If the wind is from the South, there is a gain in altitude</b>	
<b>c If you encounter a northerly drift, there is a gain in altitude</b>	
<b>d You fly towards an area of low pressure, and, therefore, experience a loss in altitude</b>	
<b>367</b> id 6839	Wind at 2000 ft 20040KT. What would you expect at the surface over the sea approximately?
<b>a 18515KT</b>	
<b>b 18540KT</b>	
<b>c 22020KT</b>	
<b>d 22040KT</b>	
<b>368</b> id 6844	Which statement is true for condensation?
<b>a Latent heat is released to the atmosphere</b>	
<b>b Latent heat is transformed into pure energy</b>	
<b>c Latent heat is absorbed from the surrounding air by the water droplet</b>	
<b>d Precipitation forms</b>	

<b>369</b> id 6848	Of which air mass does the warm sector of a polar front depression consist?
	<ul style="list-style-type: none"> <li><b>a Maritime tropical air</b></li> <li>b Maritime polar air</li> <li>c Continental tropical air</li> <li>d Continental equatorial air</li> </ul>
<b>370</b> id 6851	Which statement is true, when isobars stand close together on a surface chart?
	<ul style="list-style-type: none"> <li><b>a Strong winds are present</b></li> <li>b Lights winds prevail</li> <li>c A high pressure area is approaching</li> <li>d Westerly winds prevail</li> </ul>
<b>371</b> id 6856	Refer to the chart: On which route of flight would you expect no icing at FL 180?
	<ul style="list-style-type: none"> <li>a Zurich-Hamburg</li> <li>b Zurich-Madrid</li> <li><b>c Hamburg-Stockholm</b></li> <li>d Zurich-Vienna</li> </ul>
<b>372</b> id 6857	Refer to the chart: When flying from Zurich to Shannon at FL 340, your cruising level is.....
	<ul style="list-style-type: none"> <li>a permanently in the troposphere</li> <li><b>b permanently in the stratosphere</b></li> <li>c first in the troposphere and later in the stratosphere</li> <li>d intermittently in the stratosphere</li> </ul>
<b>373</b> id 6858	Refer to the chart: Which statement is true?
	<ul style="list-style-type: none"> <li>a The frontal system south of London has a movement towards the south</li> <li>b The freezing level over Madrid is higher than FL 120</li> <li>c There is no risk for thunderstorms over France</li> <li><b>d You may encounter turbulence over Madrid at FL 340</b></li> </ul>
<b>374</b> id 6874	Refer to the chart: For which route of flight do you expect icing?
	<ul style="list-style-type: none"> <li>a Hamburg-Oslo</li> <li><b>b Rome-Frankfurt</b></li> <li>c Copenhagen-Helsinki</li> <li>d Oslo-Prague</li> </ul>
<b>375</b> id 6875	Refer to the chart: State the height of the tropopause over Frankfurt:
	<ul style="list-style-type: none"> <li>a FL 250</li> <li>b FL 280</li> <li><b>c FL 310</b></li> <li>d FL 340</li> </ul>



<b>376</b> id 6876	Refer to the chart: What are the weather conditions for a flight from Zurich to London at your cruising altitude of FL 220?
	<ul style="list-style-type: none"> <li>a CAT during the first part of the route</li> <li>b Severe turbulence and icing during the entire flight</li> <li>c Flight mainly in clouds, no turbulence</li> <li><b>d Occasional thunderstorms</b></li> </ul>
<b>377</b> id 6877	Refer to the chart: Which statements are true?
	<ul style="list-style-type: none"> <li>a The front south of Frankfurt moves towards the Southeast with a speed of approximately 5 KT</li> <li>b The jet stream over Italy shows a maximum wind speed of 120 km</li> <li><b>c CBs have formed over the Iberian peninsula, with tops at about 25'000 ft</b></li> <li>d No significant clouds are present over Rome</li> </ul>
<b>378</b> id 6878	Refer to the chart: Which route is free of turbulence at FL 340?
	<ul style="list-style-type: none"> <li><b>a Shannon-Hamburg</b></li> <li>b Zurich-Rome</li> <li>c Zurich-Athens</li> <li>d Rom-Berlin</li> </ul>
<b>379</b> id 6879	Refer to the chart: What are the weather conditions for a flight Zurich-Stockholm at FL 240:
	<ul style="list-style-type: none"> <li>a Your flight will be mainly in clouds, outside of CAT areas</li> <li><b>b Your flight will be mainly clear of clouds, intermittently in icing conditions</b></li> <li>c No thunderstorms have to be expected</li> <li>d Your flight will be permanently clear of clouds</li> </ul>
<b>380</b> id 6880	Refer to the chart: What wind speed do you expect over Rome at FL 340?
	<ul style="list-style-type: none"> <li><b>a 145KT</b></li> <li>b 340KT</li> <li>c 95KT</li> <li>d 140 km/h</li> </ul>
<b>381</b> id 6881	Refer to the chart: On which route do you expect moderate to severe CAT at FL 300?
	<ul style="list-style-type: none"> <li><b>a Zurich-Rome</b></li> <li>b London-Zurich</li> <li>c Zurich-Copenhagen</li> <li>d Paris-Bordeaux</li> </ul>
<b>382</b> id 6898	Which air mass and cloud depiction matches the routing A-B?
	<ul style="list-style-type: none"> <li><b>a B</b></li> <li><b>b C</b></li> <li>c D</li> <li>d A</li> </ul>

<b>383</b> id 6900	On which route do you expect the cross section below?
a A-D	
b B-C	
c <b>B-D</b>	
d A-E	
<b>384</b> id 6901	On which route do you expect the cross section below?
a B-A	
b <b>D-A</b>	
c B-C	
d C-A	
<b>385</b> id 6912	The vertical extension of radiation fog during the winter over flat land is approximately:
a <b>500 ft</b>	
b 1000 ft	
c 2000 ft	
d more than 2000 ft	
<b>386</b> id 6918	What is sublimation?
a The change of state from ice to water	
b The change of state from water to water vapour	
c The change of state from water vapour to water	
d <b>The change of state from ice to water vapour or from water vapour to ice</b>	
<b>387</b> id 6919	What is evaporation?
a The change of state from ice to water	
b <b>The change of state from water to water vapour</b>	
c The change of state from water vapour to water	
d The change of state from ice to water vapour or from water vapour to ice	
<b>388</b> id 6920	What is condensation?
a The change of state from ice to water	
b The change of state from water to water vapour	
c <b>The change of state from water vapour to water</b>	
d The change of state from ice to water vapour or from water vapour to ice	
<b>389</b> id 6921	What is freezing?
a The change of state from ice to water	
b The change of state from water to water vapour	
c The change of state from water vapour to water	
d <b>The change of state from water to ice</b>	

<b>390</b> id 6923	In an anticyclone in the Northern Hemisphere, with curved isobars, the speed of the gradient wind.....
	<ul style="list-style-type: none"> <li>a is lower than the geostrophic wind</li> <li>b equals the cyclostrophic wind</li> <li>c depends on Coriolis force only</li> <li><b>d is greater than the geostrophic wind</b></li> </ul>
<b>391</b> id 6935	Why are there no or very few clouds, when a high pressure area is present?
	<ul style="list-style-type: none"> <li><b>a Because of subsiding air, subject to adiabatic heating</b></li> <li>b Because of rising air, cooling adiabatically at the saturated adiabatic lapse rate</li> <li>c The air is warmed from below</li> <li>d Warm air moves over a cold surface, thus, generating stability</li> </ul>
<b>392</b> id 6936	What is drizzle?
	<ul style="list-style-type: none"> <li><b>a Small water droplets of 0,2 to 0,5 mm in diameter</b></li> <li>b Water droplets of more than 0,5 mm in diameter</li> <li>c Precipitation which forms mostly in CB and CU clouds</li> <li>d Typical precipitation, when NS clouds are present</li> </ul>
<b>393</b> id 6937	What (amongst other) is the purpose for consulting an SWC chart prior to flight?
	<ul style="list-style-type: none"> <li><b>a To avoid areas with turbulence</b></li> <li>b To obtain exact weather information for the destination airport</li> <li>c To obtain complete weather forecasts for the entire route of flight</li> <li>d To obtain weather information for a VFR flight only</li> </ul>

## 50.02.02. Primary cause of wind

### 50.02.02.01. Primary cause of wind, pressure gradient,

<b>394</b> id 1178	Which forces are balanced with geostrophic winds?
	<ul style="list-style-type: none"> <li><b>a Pressure gradient force, Coriolis force.</b></li> <li>b Friction force, pressure gradient force, Coriolis force.</li> <li>c Pressure gradient force, Coriolis force, centrifugal force.</li> <li>d Pressure gradient force, centrifugal force, friction force.</li> </ul>
<b>395</b> id 1188	Whilst flying at FL 180 on the northern hemisphere an aircraft experiences right drift. What effect, if any, will this have on the aircraft's true altitude ?
	<ul style="list-style-type: none"> <li>a Without knowing the pressure change this question cannot be answered.</li> <li>b It increases.</li> <li>c It remains constant.</li> <li><b>d It decreases</b></li> </ul>
<b>396</b> id 1202	In the southern hemisphere what wind effect would you expect when flying from a high pressure area towards a low pressure area at FL 100?
	<ul style="list-style-type: none"> <li>a Wind from the left.</li> <li><b>b Wind from the right.</b></li> <li>c Tailwind with no drift.</li> <li>d Headwind with no drift.</li> </ul>

397 id 2075	<p>The geostrophic wind is greater than the gradient wind around a low pressure system because the</p> <p><b>a centrifugal force opposes the pressure gradient</b></p> <p>b centrifugal force is added to the pressure gradient</p> <p>c coriolis force is added to the pressure gradient</p> <p>d coriolis force opposes to the centrifugal force</p>
398 id 2076	<p>The geostrophic wind is less than the gradient wind around an anticyclone because the</p> <p>a centrifugal force opposes the pressure gradient</p> <p><b>b centrifugal force is added to the pressure gradient</b></p> <p>c effect of coriolis is added to friction</p> <p>d coriolis effect opposes the centrifugal force</p>
399 id 2077	<p>An aircraft is flying in the southern hemisphere at low altitude (less than 2000 feet) and going directly away from a centre of low pressure. What direction, relative to the aircraft, does the wind come from ?</p> <p>a From the left and slightly on the tail</p> <p>b From the right and slightly on the nose</p> <p>c From the right and slightly on the tail</p> <p><b>d From the left and slightly on the nose</b></p>
400 id 2252	<p>What prevents air from flowing directly from high-pressure areas to low-pressure areas ?</p> <p>a The pressure gradient force</p> <p>b Surface friction</p> <p>c Katabatic force</p> <p><b>d Coriolis force</b></p>
401 id 2435	<p>An aircraft flying in the southern hemisphere at 2000 feet, has to turn to the right in order to allow for drift. In which direction, relative to the aircraft, is the centre of low pressure ?</p> <p>a To the left.</p> <p>b Behind.</p> <p><b>c In front.</b></p> <p>d To the right.</p>
402 id 3816	<p>Wind is caused by</p> <p>a the rotation of the earth</p> <p><b>b horizontal pressure differences</b></p> <p>c friction between the air and the ground</p> <p>d the movements of fronts</p>
403 id 3822	<p>You are flying from east to west in the northern hemisphere at the 500 hPa pressure surface. Which of the following statements is correct?</p> <p>a If you have a tail wind you are losing altitude</p> <p>b If the wind is from the south you are gaining altitude</p> <p>c If you have a head wind you are gaining altitude</p> <p><b>d If the wind is from the north you are gaining altitude</b></p>

<b>404</b> id 3823	Geostrophic wind is the wind when isobars are <b>a straight lines and no friction is involved.</b> b curved lines and no friction is involved c straight lines and friction is involved. d curved lines and friction is involved.
<b>405</b> id 3826	The wind tends to follow the contour lines (isohypsies) above the friction layer because <b>a the coriolis force tends to balance with the horizontal pressure gradient force</b> b contour lines are lines that connect points with the same windspeed in the upper air c the coriolis force acts perpendicular on a line that connects high and low pressure system d the friction of the air with the earth's surface gives the airflow a diversion perpendicular to the gradient force.
<b>406</b> id 3827	The wind speed in a system with curved isobars compared to a system with straight isobars is (other conditions being the same) <b>a always higher</b> <b>b higher if curvature is anticyclonic</b> c always lower d higher if curvature is cyclonic
<b>407</b> id 3829	The geostrophic wind depends on <b>a centripetal force, height, pressure gradient</b> b earth's rotation, geographic latitude, centripetal force c geographic latitude, centripetal force, height <b>d density, earth's rotation, geographic latitude</b>
<b>408</b> id 3832	The difference between geostrophic wind and gradient wind is caused by <b>a curvature of isobars</b> b friction c horizontal temperature gradients d slope of pressure surfaces
<b>409</b> id 3836	The geostrophic wind speed is directly proportional to the <b>a density of the air</b> b curvature of isobars c sine of latitude <b>d horizontal pressure gradient</b>
<b>410</b> id 3839	Geostrophic wind <b>a is perpendicular to the horizontal pressure gradient force</b> b is directly proportional to the density of the air c always increases with increasing height d veers with height if cold air is advected in the northern hemisphere

<b>411</b> id 4974	For a similar pressure gradient, the geostrophic wind speed will be
	<ul style="list-style-type: none"> <li>a the same at all latitudes north or south of 15°</li> <li>b greater at 60°N than at 30°N</li> <li><b>c greater at 30°N than at 60°N</b></li> <li>d equivalent to gradient wind <math>\pm</math> thermal component</li> </ul>
<b>412</b> id 4975	For the same pressure gradient at 60°N, 50°N and 40°N the speed of the geostrophic wind will be
	<ul style="list-style-type: none"> <li><b>a greatest at 40°N</b></li> <li>b the same at all latitudes</li> <li>c greatest at 60°N</li> <li>d least at 50°N</li> </ul>
<b>413</b> id 4976	Under anticyclone conditions in the northern hemisphere, with curved isobars the speed of the gradient wind is
	<ul style="list-style-type: none"> <li>a less than the geostrophic wind</li> <li><b>b greater than the geostrophic wind</b></li> <li>c the same as the thermal component</li> <li>d proportional only to the Coriolis force</li> </ul>
<b>414</b> id 6429	Which is a characteristic of low level wind shear as it relates to frontal activity ?
	<ul style="list-style-type: none"> <li>a The amount of wind shear in cold fronts is insignificant and does not have to be considered.</li> <li><b>b With a warm front, the most critical period is just before the front has passed the airport.</b></li> <li>c With a cold front, the most critical period is just before the front passes the airport.</li> <li>d Turbulence will always exist in wind-shear conditions.</li> </ul>
<b>415</b> id 6475	Concerning advection fog, a possible extent and duration is:
	<ul style="list-style-type: none"> <li>a Tens of meters and many days.</li> <li>b Tens of meters and some hours.</li> <li><b>c Hundreds of meters and many days.</b></li> <li>d Hundreds of meters and some hours.</li> </ul>
<b>416</b> id 6479	Fog formation by warm and humid air flowing over cold areas is often extensive and of long duration. Such fog is called:
	<ul style="list-style-type: none"> <li>a Radiation fog.</li> <li><b>b Advection fog</b></li> <li>c Orographic fog.</li> <li>d Frontal fog</li> </ul>
<b>417</b> id 6491	When CAT (clear air turbulence) conditions are anticipated, the following procedure should be used as soon as turbulent air penetration speed is established:
	<ul style="list-style-type: none"> <li>a The airspeed indicator should be used as primary flight instrument.</li> <li>b The attitude indicator should be used as secondary flight instrument.</li> <li><b>c Maintain wings level and control pitch attitude smoothly.</b></li> <li>d Prepare the use of large control inputs to fight the excessive G-forces that may occur.</li> </ul>

<b>418</b>	Define a warm front:
id 6503	
a	The front side of a heat wave.
b	The situation when cold air displaces warm air.
c	<b>The situation when warm air displaces cold air.</b>
d	The same as an occlusion.
<b>419</b>	State in which type of front supercooled raindrops most frequently occur?
id 6507	
a	<b>Warm front.</b>
b	Cold front.
c	Occlusion.
d	Stationary front.
<b>420</b>	How would you describe a jetstream?
id 6527	
a	<b>A zone of wind in the upper troposphere or lower stratosphere with wind forces at 60 knots minimum.</b>
b	The outflow airstream from a turbine engine..
c	Any wind force above 64 knots.
d	A zone of winds in connection with a "squall line".
<b>421</b>	The wind force at an isobaric surface in the Northern Hemisphere:
id 6528	
a	<b>increases with increased inclination of the isobaric surface.</b>
b	is greatest when the isobaric surface is horizontal.
c	is not influenced by inclination of the isobaric surface.
d	decreases with increased inclination of the isobaric surface.
<b>422</b>	Which phenomenon is often associated with a jetstream?
id 6529	
a	Icing.
b	<b>Clear air turbulence (CAT).</b>
c	Windshear.
d	Both a and b.
<b>423</b>	The approximate position of the polar jetstream is:
id 6531	
a	<b>approx. 60°N</b>
b	approx. 30°N
c	approx. 80°N
d	Over the north polar area.
<b>424</b>	When the inclination of isobar surfaces are equal, the geostrophic wind velocity depends upon
id 6537	
a	Air density.
b	<b>Latitude.</b>
c	Temperature.
d	Centrifugal force.

<b>425</b> id 6555	<p>Buy's-Ballot's law of winds states that in the northern hemisphere standing with your back to the wind, you have:</p> <p><b>a A low pressure ahead at an angle to your left, and a high pressure behind you at an angle to the right.</b></p> <p>b A low pressure ahead at an angle to your right, and a high pressure behind you at an angle to the left.</p> <p>c A high pressure ahead at an angle to your right, and a low pressure behind you at an angle to the left.</p> <p>d A high pressure ahead at an angle to your left, and a low pressure behind you at an angle to the right.</p>
<b>426</b> id 6565	<p>The weather most likely as a warm front passes is:</p> <p>a Light showers, moderate continuous drizzle</p> <p><b>b Moderate continuous rain, intermittent light drizzle</b></p> <p>c Moderate continuous rain, rain showers</p> <p>d</p>
<b>427</b> id 6568	<p>Which of the following processes can produce both fog and clouds?</p> <p>a Divergence</p> <p><b>b Advection</b></p> <p>c Convection</p> <p>d</p>
<b>428</b> id 6586	<p>The wind that flows along straight, parallel isobars is called the:</p> <p>a Gradient Wind</p> <p><b>b Geostrophic Wind</b></p> <p>c Isobaric Wind</p> <p>d</p>
<b>429</b> id 6590	<p>Turbulence at low level is more likely to be associated with:</p> <p>a Steady drizzle</p> <p>b An anticyclone over the ocean</p> <p><b>c A temperature inversion</b></p> <p>d</p>
<b>430</b> id 6598	<p>Select the true statement concerning isobars and wind flow patterns around high and low pressure systems that are shown on a pressure chart:</p> <p>a Surface winds flow perpendicular to the isobars</p> <p>b When the isobars are far apart, crests of standing waves may be marked by lenticular clouds</p> <p><b>c When the isobars are close together, the pressure gradient force is stronger, and wind velocities are higher</b></p> <p>d When the isobars are close together, the pressure gradient force is weaker, and wind velocities are lower</p>



<b>431</b> id 6610	A sea breeze blows:  <b>a From the sea by day</b> b From the sea by night c From the land by day d
<b>432</b> id 6611	A land breeze blows:  a From the sea by day b From the sea by night <b>c From the land by night</b> d
<b>433</b> id 6618	Within a depression, two air masses meet so that a warm front is formed. In relation to a typical warm front:  a Warm air will be replaced by cold air, the frontal slope will be around 1:150 <b>b Cold air will be replaced by warm air, the frontal slope will be around 1:150</b> c Warm air will be replaced by cold air, the frontal slope will be around 1:50 d
<b>434</b> id 6621	As a warm front approaches a stationary observer, the cloud base:  a Remains the same <b>b Lowers</b> c Rises d
<b>435</b> id 6647	The cloud sequence that could be expected during the passage of a typical warm front would be:  a CI, AS, CB, CU b AS, CI, CS, ST, NS <b>c CI, CS, AS, NS, ST</b> d
<b>436</b> id 6659	Where are jetstreams normally located?  a In areas of strong low pressure systems in the stratosphere <b>b At the tropopause where intensified temperature gradients are located</b> c In a single continuous band, encircling the Earth, where there is a break between the equatorial and polar tropopause d
<b>437</b> id 6660	Which type clouds may be associated with the jetstream?  a CB cloud line where the jetstream crosses the cold front <b>b CI clouds on the equatorial side of the jetstream</b> c CS cloud band on the polar side and under the jetstream d

<b>438</b> id 6661	Where do the maximum winds associated with the jetstream usually occur?
	<ul style="list-style-type: none"> <li><b>a In the vicinity of breaks in the tropopause on the polar side of the jet core</b></li> <li>b Below the jet core where a long straight stretch of the jetstream is located</li> <li>c On the equatorial side of the jetstream where moisture has formed cirriform clouds</li> <li>d</li> </ul>
<b>439</b> id 6667	Where is the normal location of the jetstream relative to surface lows and fronts?
	<ul style="list-style-type: none"> <li><b>a North of the surface systems</b></li> <li>b South of the low and warm front</li> <li>c Over the low and crosses both the warm front and the cold front</li> <li>d</li> </ul>
<b>440</b> id 6668	Which type frontal system is normally crossed by the jetstream?
	<ul style="list-style-type: none"> <li>a Cold front and warm front</li> <li>b Warm front</li> <li><b>c Occluded front</b></li> <li>d</li> </ul>
<b>441</b> id 6733	When flying at FL 180 in the Northern Hemisphere you experience a right drift:
	<ul style="list-style-type: none"> <li><b>a Your TA decreases</b></li> <li>b Your TA increases</li> <li>c Your TA remains unchanged</li> <li>d Not enough information is provided to determine the TA</li> </ul>
<b>442</b> id 6734	When flying at FL 180 in the Northern Hemisphere you experience a left drift:
	<ul style="list-style-type: none"> <li>a Your TA decreases</li> <li><b>b Your TA increases</b></li> <li>c Your TA remains unchanged</li> <li>d Not enough information is provided to determine the TA</li> </ul>
<b>443</b> id 6758	In a warm front, a freezing level of 10'000 ft in the warm air and 2000 ft in the cold air is observed. Where is the probability for FZRA the lowest?
	<ul style="list-style-type: none"> <li>a 5000 ft</li> <li><b>b 12'000 ft</b></li> <li>c 10'000 ft</li> <li>d 1000 ft</li> </ul>
<b>444</b> id 6792	What can be said about a wind speed of 350 KT in a jetstream?
	<ul style="list-style-type: none"> <li><b>a It is possible, but rare</b></li> <li>b It is impossible</li> <li>c A wind speed of 350 KT is common</li> <li>d It is only possible in a subtropical jetstream</li> </ul>

<b>445</b> id 6795	A warm front is approaching an airport: <b>a QFE and QNH decrease</b> b QFE increases and QNH decreases c QFE decreases and QNH increases d QNH decreases, while QFE remains unchanged
<b>446</b> id 6827	Where do you encounter the strongest winds close to the ground? <b>a In the transition zone between air masses</b> b In a cold air mass c At a point distant from the center of the occlusion d When a ridge is present
<b>447</b> id 6837	How is the weather in Bombay in early July influenced? <b>a By SW monsoon</b> b By NE monsoon c By the Harmattan d By the trade winds
<b>448</b> id 6849	What clouds do you expect approximately 800 km ahead of a warm front? <b>a CS</b> b AC c NS d CU
<b>449</b> id 6896	The average slope of a warm front is approximately: <b>a 1:150</b> b 1:250 c 1: 500 d 1:80
<b>450</b> id 6922	What is the geostrophic wind? <b>a It blows along curved isobars, and is affected by Coriolis force and centrifugal force</b> b It blows parallel to straight isobars when there are no gradient forces present c It blows along curved isobars when frictional forces are present d It blows parallel to straight isobars, when no friction is present
<b>451</b> id 6940	State the altitude at which the core of the Arctic Jet Stream can be found: <b>a 20000 ft</b> b 30000 ft c 40000 ft d 50000 ft

<b>452</b> id 6941	State the altitude at which the core of the Subtropical Jet Stream can be found:
<b>a</b>	20000 ft
<b>b</b>	30000 ft
<b>c</b>	<b>40000 ft</b>
<b>d</b>	50000 ft

#### 50.02.02.02. Relationship between isobars and wind

<b>453</b> id 1177	What characteristics will the surface winds have in an area where the isobars on the weather map are very close together?
<b>a</b>	Strong and parallel to the isobars.
<b>b</b>	Very weak but gusty and flowing across the isobars.
<b>c</b>	<b>Strong and flowing across the isobars.</b>
<b>d</b>	Moderate and parallel to the isobars.
<b>454</b> id 2253	Select the true statement concerning isobars and wind flow patterns around high- and low-pressure systems that are shown on a surface weather chart.
<b>a</b>	<b>When the isobars are close together, the pressure gradient force is greater and wind velocities are stronger.</b>
<b>b</b>	Surface winds flow perpendicular to the isobars.
<b>c</b>	Isobars connect contour lines of equal temperature.
<b>d</b>	When the isobars are far apart, crest of standing waves may be marked by stationary lenticular clouds.
<b>455</b> id 2434	Where are you likely to find the strongest winds close to the ground?
<b>a</b>	At the centre of a high-pressure system
<b>b</b>	At the centre of a low-pressure system
<b>c</b>	<b>In the transition zone between two air masses</b>
<b>d</b>	Where there is little variation in pressure over a large area during the winter months
<b>456</b> id 3812	The greater the pressure gradient the
<b>a</b>	further the isobars will be apart and the weaker the wind
<b>b</b>	<b>closer the isobars and the stronger the wind</b>
<b>c</b>	closer the isobars and the lower the temperatures
<b>d</b>	further the isobars will be apart and the higher the temperature
<b>457</b> id 3813	When isobars, for an area in the mid-latitudes on a weather map, are close together, the wind is most likely to be
<b>a</b>	<b>strong</b>
<b>b</b>	blowing perpendicular to the isobars
<b>c</b>	changing direction rapidly
<b>d</b>	light

<b>458</b> id 4143	Which of the following is true concerning an aircraft that is flying at FL180 in the northern hemisphere, where wind is geostrophic and the true altitude remains constant ?
<b>a</b>	There is a cross wind from the right
<b>b</b>	There is a cross wind from the left
<b>c</b>	<b>There is no cross wind</b>
<b>d</b>	Without knowing temperature at FL 180 this question can not be answered

<b>459</b> id 6627	An aircraft is flying on a constant heading with left drift in the northern hemisphere, maintaining a constant indicated pressure altitude. Which of the following is true?
<b>a</b>	<b>It is likely to be climbing relative to the surface</b>
<b>b</b>	It is likely to be maintaining a constant distance relative to the surface
<b>c</b>	It is likely to be descending relative to the surface
<b>d</b>	

### 50.02.02.03. Effects of convergence and divergence

<b>460</b> id 3821	In an area of converging air
<b>a</b>	clouds can not be formed
<b>b</b>	convective clouds can be dissolved
<b>c</b>	stratified clouds can be dissolved
<b>d</b>	<b>clouds can be formed</b>

<b>461</b> id 3828	Divergence in the upper air results, near the surface, in
<b>a</b>	falling pressure and likely dissipation of clouds
<b>b</b>	rising pressure and likely formation of clouds
<b>c</b>	rising pressure and likely dissipation of clouds
<b>d</b>	<b>falling pressure and likely formation of clouds</b>

<b>462</b> id 3840	In a low pressure system the convergence at the surface is caused by
<b>a</b>	the inbalance of the horizontal gradient force and the Coriolis force
<b>b</b>	centripetal forces
<b>c</b>	<b>frictional forces</b>
<b>d</b>	the curvature of the isobars

### 50.02.03. General circulation

#### 50.02.03.01. General circulation around the globe

<b>463</b> id 2436	Between which latitudes are you most likely to find the subtropical high-pressure belt ?
<b>a</b>	55° - 75°.
<b>b</b>	10° - 15°.
<b>c</b>	35° - 55°.
<b>d</b>	<b>25° - 35°.</b>

<b>464</b> id 2437	Between which latitudes are you most likely to find the region of travelling low pressure systems ?
<b>a</b>	35° - 55°
<b>b</b>	55° - 75°
<b>c</b>	25° - 35°
<b>d</b>	10° - 15°
<b>465</b> id 4148	In the central part of the Atlantic Ocean between 10°N and 20°N the prevailing winds are
<b>a</b>	NE monsoon in winter and SW monsoon in summer
<b>b</b>	<b>NE trade winds</b>
<b>c</b>	SE trade winds
<b>d</b>	SW winds throughout the whole year
<b>466</b> id 4978	Assuming a generalised zonal system of world wind circulation, the SE trade winds are applicable to zone
<b>a</b>	w
<b>b</b>	t
<b>c</b>	u
<b>d</b>	v
<b>467</b> id 4979	Assuming a generalised zonal system of world climatic and wind circulation, zone "t" is an area of
<b>a</b>	NE trade winds
<b>b</b>	SE trade winds
<b>c</b>	travelling low pressure systems
<b>d</b>	<b>subtropical high pressure systems</b>
<b>468</b> id 4980	Assuming a generalised zonal system of world wind circulation the travelling low pressure systems are applicable to zone
<b>a</b>	u and w
<b>b</b>	t only
<b>c</b>	t and x
<b>d</b>	<b>s and y</b>
<b>469</b> id 4981	Considering Melbourne (C) in July, the weather is predominantly influenced by the zone of
<b>a</b>	equatorial low pressure due to the proximity of the intertropical convergence zone over central Australia
<b>b</b>	antarctic high pressure due to the absence of any protective land mass between south Australia and Antarctica
<b>c</b>	disturbed temperate low pressure, bringing an almost continuous succession of fronts resulting in strong winds, low cloud and rain
<b>d</b>	<b>subtropical high pressure, with the occasional passage of fronts originating in the adjacent zone of disturbed temperate low pressure</b>
<b>470</b> id 4982	Assuming a generalised zonal system of world climatic and wind circulation, zone "y" is an area of
<b>a</b>	SE trade winds
<b>b</b>	NE trade winds
<b>c</b>	<b>travelling low pressure systems</b>
<b>d</b>	subtropical high pressure systems

<b>471</b> id 4983	Assuming a generalised zonal system of world wind circulation, the NE trade winds are applicable to zone
	<ul style="list-style-type: none"> <li>a u</li> <li>b t</li> <li>c v</li> <li>d w</li> </ul>
<b>472</b> id 4984	Assuming a generalised zonal system of world climatic and wind circulation, zone "u" is in area of
	<ul style="list-style-type: none"> <li>a SW trade winds</li> <li>b travelling depressions</li> <li>c <b>NE trade winds</b></li> <li>d subtropical high pressure</li> </ul>
<b>473</b> id 6438	When a cold front has passed over an airfield, the wind will:
	<ul style="list-style-type: none"> <li>a "reverse".</li> <li>b <b>"veer".</b></li> <li>c not change.</li> <li>d become laminar.</li> </ul>
<b>474</b> id 6439	Bad weather usually follows a low pressure because there will be:
	<ul style="list-style-type: none"> <li>a Convergence.</li> <li>b Divergence.</li> <li>c <b>Convergence with lifting of air masses in a deeper layer.</b></li> <li>d A sinking of the air masses.</li> </ul>
<b>475</b> id 6448	What is meant by an area of divergence?
	<ul style="list-style-type: none"> <li>a An area where air masses are moving in</li> <li>b <b>An area where air masses are moving out</b></li> <li>c A frontal zone.</li> <li>d A high pressure area</li> </ul>
<b>476</b> id 6566	What is the cloud-type sequence most likely to be associated with the passage of a cold front?
	<ul style="list-style-type: none"> <li>a CU/CB, NS and low ST</li> <li>b SC/CB, and BKN ST</li> <li>c <b>CU/CB, Isol CU</b></li> <li>d</li> </ul>
<b>477</b> id 6619	Within a depression, two air masses meet so that a cold front is formed. In relation to a typical cold front:
	<ul style="list-style-type: none"> <li>a <b>Warm air will be replaced by cold air, the frontal slope will be around 1:80</b></li> <li>b Cold air will be replaced by warm air, the frontal slope will be around 1:80</li> <li>c Warm air will be replaced by cold air, the frontal slope will be around 1:150</li> <li>d</li> </ul>

<b>478</b> id 6793	Name the jetstream(s) which appear all year round:
	<ul style="list-style-type: none"> <li><b>a Subtropical and polar front jetstream</b></li> <li>b Subtropical jetstream only</li> <li>c Polar front jetstream only</li> <li>d Arctical jetstream</li> </ul>
<b>479</b> id 6796	The ITCZ affects
	<ul style="list-style-type: none"> <li><b>a West Africa between 10° and 30° N, and the north coasts of the Arabian Sea</b></li> <li>b East Africa between 10° and 20° N</li> <li>c West Africa between 10° and 30° N only</li> <li>d The entire African continent</li> </ul>
<b>480</b> id 6825	What can be said about showers at a cold front?
	<ul style="list-style-type: none"> <li><b>a Unstable air is present</b></li> <li>b They occur mostly in stable air</li> <li>c It is a sign for a cold occlusion</li> <li>d NS clouds are present</li> </ul>
<b>481</b> id 6859	Refer to the chart: State the average wind for the route Zurich-Hamburg, FL 260:
	<ul style="list-style-type: none"> <li>a 20015KT</li> <li>b 02020KT</li> <li><b>c 23020KT</b></li> <li>d 26025KT</li> </ul>
<b>482</b> id 6860	Refer to the chart: State the average temperature for the route Zurich-Lissabon, FL 200:
	<ul style="list-style-type: none"> <li><b>a -33°C</b></li> <li>b -30°C</li> <li>c -41°C</li> <li>d -49°C</li> </ul>
<b>483</b> id 6861	Refer to the chart: State the height of the -40°C isotherm over Stockholm:
	<ul style="list-style-type: none"> <li>a FL 410</li> <li><b>b FL 230</b></li> <li>c FL 390</li> <li>d FL 250</li> </ul>
<b>484</b> id 6862	Which upper level chart do you use when preparing a flight at a cruising altitude of FL 170?
	<ul style="list-style-type: none"> <li><b>a 500 hPa</b></li> <li>b 850 hPa</li> <li>c 700 hPa</li> <li>d 300 hPa</li> </ul>



<b>485</b> id 6863	Refer to the chart: State the average wind for the route Athens-Geneva, FL 160:
<b>a</b>	05035KT
<b>b</b>	26040KT
<b>c</b>	21025KT
<b>d</b>	<b>23040KT</b>
<b>486</b> id 6864	Refer to the chart: State the average temperature for the route Athens-Geneva, FL 150:
<b>a</b>	-21°C
<b>b</b>	<b>-14°C</b>
<b>c</b>	-27°C
<b>d</b>	-11°C
<b>487</b> id 6865	Refer to the chart: State the air temperature and the deviation to ISA over Copenhagen at FL 140:
<b>a</b>	<b>8°C colder than ISA</b>
<b>b</b>	4°C warmer than ISA
<b>c</b>	8°C warmer than ISA
<b>d</b>	12°C colder than ISA
<b>488</b> id 6866	Refer to the chart: State the average wind for the route Zurich-Rome, FL 110:
<b>a</b>	<b>23015KT</b>
<b>b</b>	20030KT
<b>c</b>	04010KT
<b>d</b>	25020KT
<b>489</b> id 6867	Refer to the chart: State the average air temperature for the route Zurich-Rome, FL 110:
<b>a</b>	-06°C
<b>b</b>	<b>-09°C</b>
<b>c</b>	-12°C
<b>d</b>	+05°C
<b>490</b> id 6868	Refer to the chart: State the height of the freezing level over Shannon by applying the common vertical temperature gradient:
<b>a</b>	FL 140
<b>b</b>	FL 120
<b>c</b>	<b>FL 60</b>
<b>d</b>	FL 20
<b>491</b> id 6869	Refer to the chart: State the average wind for the route Frankfurt-Rome, FL 170:
<b>a</b>	20050KT
<b>b</b>	<b>23040KT</b>
<b>c</b>	06050KT
<b>d</b>	03035KT

<b>492</b> id 6870	Refer to the chart: State the height of the freezing level over Tunis, considering the common vertical temperature gradient:
a	FL 260
b	FL 180
c	<b>FL 100</b>
d	FL 20
<b>493</b> id 6871	Refer to the chart: What is the average temperature deviation from ISA for the route Frankfurt-Rome?
a	10°C colder than ISA
b	10°C warmer than ISA
c	<b>4°C colder than ISA</b>
d	4°C warmer than ISA
<b>494</b> id 6872	Refer to the chart: What is the average temperature for the route Geneva-Stockholm, FL 260:
a	-55°C
b	-51°C
c	-63°C
d	<b>-47°C</b>
<b>495</b> id 6873	Refer to the chart: What is the average wind for the route Shannon-Lisbon, FL 290:
a	<b>36080KT</b>
b	03070KT
c	19075KT
d	34090KT
<b>496</b> id 6897	The average slope of a cold front is approximately:
a	1:150
b	1:250
c	1: 500
d	<b>1:80</b>

## 50.02.04. Turbulence

### 50.02.04.01. Turbulence and gustiness, types of turbs

<b>497</b> id 1180	Which degree of aircraft turbulence is determined by the following ICAO description? "There may be moderate changes in aircraft attitude and/or altitude but the aircraft remains in positive control at all times. Usually, small variations in air speed. Changes in accelerometer readings of 0.5 to 1.0 g at the aircraft's center of gravity. Occupants feel strain against seat belts. Loose
a	Severe.
b	Light.
c	<b>Moderate.</b>
d	Violent.

<b>498</b> id 2559	<p>All pilots encountering Clear Air Turbulence are requested to report it. You experience CAT which causes passengers and crew to feel definite strain against their seat belt or shoulders straps. Unsecured objects are dislodged. Food service and walking are difficult. This intensity of CAT should be reported as</p> <p>a light</p> <p><b>b moderate</b></p> <p>c severe</p> <p>d extreme</p>
<b>499</b> id 6449	<p>On a weather chart an occlusion is indicated by a coloured line of:</p> <p><b>a Violet.</b></p> <p>b Yellow.</p> <p>c Black.</p> <p>d Green.</p>
<b>500</b> id 6476	<p>On a weather chart fog is indicated by:</p> <p><b>a Yellow colour or horizontal lines.</b></p> <p>b Green colour.</p> <p>c Blue colour.</p> <p>d Green comma sign.</p>
<b>501</b> id 6826	<p>You cross a jet stream 2500 ft below the core at a right angle over Western Europe. While crossing, the temperature is increasing. What wind direction do you encounter?</p> <p><b>a Wind from the right</b></p> <p>b Wind from the left</p> <p>c Information insufficient to determine wind direction</p> <p>d Calm winds</p>
<b>502</b> id 6928	<p>Which of the following symbols show a hazard for IFR flights, according to ICAO?</p> <p><b>a A</b></p> <p>b A, B</p> <p>c C</p> <p><b>d C, D</b></p>
<b>503</b> id 6929	<p>Which of the following symbols show a hazard for IFR flights, according to ICAO?</p> <p><b>a A</b></p> <p>b A, B</p> <p>c C</p> <p><b>d C, D</b></p>
<b>504</b> id 6930	<p>Which of the following symbols show a hazard for IFR flights, according to ICAO?</p> <p><b>a A</b></p> <p>b A, B</p> <p>c A, C</p> <p><b>d D</b></p>

<b>505</b> id 6931	Which of the following symbols show a hazard for IFR flights, according to ICAO?
<b>a</b>	A, C
<b>b</b>	<b>B</b>
<b>c</b>	A, D
<b>d</b>	C

## 50.02.04.02. Origin and location of turbulence

<b>506</b> id 1203	What degree of turbulence, if any, is likely to be encountered while flying through a cold front in the summer over Central Europe at FL 100?
<b>a</b>	Moderate turbulence in NS cloud.
<b>b</b>	<b>Severe turbulence in CB cloud.</b>
<b>c</b>	Light turbulence in CB cloud.
<b>d</b>	Light turbulence in ST cloud.

<b>507</b> id 2090	Which cloud type may indicate the presence of severe turbulence ?
<b>a</b>	<b>Alto cumulus lenticularis</b>
<b>b</b>	Stratocumulus
<b>c</b>	Cirrocumulus
<b>d</b>	Nimbostratus

<b>508</b> id 3824	Fair weather cumulus often is an indication of
<b>a</b>	a high risk of thunderstorms
<b>b</b>	poor visibility at surface
<b>c</b>	smooth flying conditions below the cloud level
<b>d</b>	<b>turbulence at and below the cloud level</b>

<b>509</b> id 4121	On a clear summer day, turbulence caused by solar heating is most pronounced
<b>a</b>	immediately after sunset
<b>b</b>	<b>during the early afternoon</b>
<b>c</b>	during early morning hours before sunrise
<b>d</b>	about midmorning

## 50.02.05. Variation of wind with height

### 50.02.05.01. Variation of wind in the friction layer

<b>510</b> id 1186	Generally northern hemisphere winds at 5000 FT/AGL are southwesterly while most of the surface winds are southerly. What is the primary reason of difference between these two wind directions?
<b>a</b>	The influence of warm air at the lower altitude.
<b>b</b>	A strong pressure gradient at higher altitudes.
<b>c</b>	Stronger Coriolis force at the surface.
<b>d</b>	<b>Friction between the wind and the surface.</b>

<b>511</b> id 1187	Friction between the air and the ground results in the northern hemisphere in:
	<ul style="list-style-type: none"> <li>a backing of the wind and increase of wind speed at the surface.</li> <li>b veering of the wind and decrease of wind speed at the surface.</li> <li><b>c backing of the wind and decrease of wind speed at the surface.</b></li> <li>d veering of the wind and increase of wind speed at the surface.</li> </ul>
<b>512</b> id 1204	You are flying at 2 500 FT/AGL, with a southerly wind, and intend to land at an airport, at sea level directly below. From approximately which direction would you expect the surface wind (mid-latitude, northern hemisphere)?
	<ul style="list-style-type: none"> <li>a South.</li> <li>b South-southwest.</li> <li>c Southwest.</li> <li><b>d South-southeast.</b></li> </ul>
<b>513</b> id 2084	In the lower layers of the atmosphere due to friction the wind changes direction towards the low pressure area because :
	<ul style="list-style-type: none"> <li>a turbulence is formed and pressure decreases</li> <li>b the pressure gradient increases</li> <li>c turbulence is formed and pressure increases</li> <li><b>d wind speed decreases and therefore coriolis force decreases</b></li> </ul>
<b>514</b> id 2247	What causes surface winds to flow across the isobars at an angle rather than parallel to the isobars ?
	<ul style="list-style-type: none"> <li>a Coriolis force</li> <li><b>b Surface friction</b></li> <li>c Greater density of the air at the surface</li> <li>d Greater atmospheric pressure at the surface</li> </ul>
<b>515</b> id 2439	If Paris reports a wind of 19015KT on the METAR, what wind velocity would you expect to encounter at a height of 2000 feet above the ground ?
	<ul style="list-style-type: none"> <li>a 16020KT</li> <li><b>b 22030KT</b></li> <li>c 25025KT</li> <li>d 22010KT</li> </ul>
<b>516</b> id 2440	If Paris reports a wind of 08010KT on the METAR, what wind velocity would you expect to encounter at a height of 2000 feet above the ground ?
	<ul style="list-style-type: none"> <li><b>a 11020KT</b></li> <li>b 08015KT</li> <li>c 05020KT</li> <li>d 08005KT</li> </ul>
<b>517</b> id 2441	If Paris reports a wind of 16020KT on the METAR, what wind velocity would you expect to encounter at a height of 2000 feet above the ground?
	<ul style="list-style-type: none"> <li>a 14020KT</li> <li>b 16030KT</li> <li><b>c 19040KT</b></li> <li>d 17015KT</li> </ul>

518 id 2442	<p>If Paris reports a wind of 30012KT on the METAR, what wind velocity would you expect to encounter at a height of 2000 feet above the ground ?</p> <p>a 30025KT</p> <p>b 23030KT</p> <p><b>c 33025KT</b></p> <p>d 27020KT</p>
519 id 3814	<p>In the northern hemisphere a pilot flying at 1000 FT/AGL directly towards the centre of a low pressure area, will find the wind blowing from</p> <p>a about 45 degrees to the right of directly ahead</p> <p>b right and behind</p> <p><b>c left and behind</b></p> <p>d directly ahead</p>
520 id 3815	<p>In the northern hemisphere the wind at the surface blows</p> <p>a from a low pressure area to a high pressure area</p> <p><b>b counter-clockwise around, and toward the centre of, a low pressure area</b></p> <p>c clockwise around, and away from the centre of, a low pressure area</p> <p>d counter-clockwise around, and away from the centre of, a high pressure area.</p>
521 id 3817	<p>During a descent from 2000 FT above the surface to the surface (no frontal passage) the wind normally</p> <p><b>a backs and decreases</b></p> <p>b veers and increases</p> <p>c backs and increases</p> <p>d veers and decreases</p>
522 id 3825	<p>What relationship exists between the wind at 3000 feet and the surface wind?</p> <p>a The surface wind is veered compared to the wind at 3000 feet and is usually weaker.</p> <p>b They have the same direction, but the surface wind is weaker, caused by friction</p> <p>c They are practically the same, except when eddies exist, caused by obstacles</p> <p><b>d The wind at 3000 feet is parallel to the isohypses and the surface wind direction is across the isobars toward the low pressure and the surface wind is weaker.</b></p>
523 id 3833	<p>The vertical extent of the friction layer depends primarily on</p> <p>a roughness of surface, temperature, local time</p> <p>b wind speed, roughness of surface, temperature</p> <p><b>c stability, wind speed, roughness of surface</b></p> <p>d temperature, local time, environmental lapse rate</p>
524 id 3834	<p>During periods of prolonged clear skies associated with anticyclonic conditions, the</p> <p><b>a surface wind speed tends to be highest during the early afternoon</b></p> <p>b surface wind speed tends to be highest at night</p> <p>c angle between isobars and surface wind direction tends to be greatest in the early afternoon</p> <p>d wind tends to back from early morning until early afternoon</p>

<b>525</b> id 4985	In the northern hemisphere the gradient wind of a cyclonic pressure distribution is 350/24, over the sea the surface wind would approximate
<b>a 340/20</b>	
b 030/20	
c 340/28	
d 030/28	
<b>526</b> id 4986	In the northern hemisphere with an anticyclonic pressure system the geostrophic wind at 2000 FT over the sea is 060/15. At the same position the surface wind is most likely to be
a 060/12	
<b>b 045/12</b>	
c 060/18	
d 075/12	
<b>527</b> id 6530	Severe turbulence is associated with a jetstream:
<b>a At the low pressure side.</b>	
b At the high pressure side.	
c In the core of the jetstream.	
d Underneath the core of the jetstream.	
<b>528</b> id 6636	Which of the following is most likely to occur after passage of a cold front?
a A fall in pressure, a fall in temperature and dew point	
<b>b A rise in pressure, a fall in temperature and dew point</b>	
c A rise in pressure, a fall in temperature and a rise in dew point	
d	
<b>529</b> id 6813	What is the easterly wave?
<b>a A wave in the trade wind belt, moving from east to west, with severe convective activity in the rear of its trough</b>	
b A wave in the moderate latitudes, moving from east to west, with mostly stable air in the rear of its trough	
c An orographic-induced wave, moving to the east, in moderate latitudes	
d A wave in the trade wind belt, moving to the east, with severe convective action in the rear of its trough	
<b>50.02.05.02. Variation of the wind caused by fronts</b>	
<b>530</b> id 3831	At the approach of a warm front (northern hemisphere) the wind direction changes from the surface up to the tropopause. The effect of this change is that the wind
a veers in the friction layer and backs above the friction layer	
b backs in the friction layer and veers above the friction layer	
<b>c veers in the friction layer and veers above the friction layer</b>	
d backs in the friction layer and and backs above the friction layer	

## 50.02.06. Local winds

### 50.02.06.01. Anabatic and catabatic winds

531 id 1183	In a land- and sea-breeze circulation the land-breeze blows :  <b>a</b> during the day and is stronger than the sea-breeze. <b>b during the night and is weaker than the sea-breeze.</b> <b>c</b> during the day and is weaker than the sea-breeze. <b>d</b> during the night and is stronger than the sea-breeze.
532 id 1184	A high pressure area (shallow pressure gradient) covers an area of the Mediterranean Sea and its nearby airport. What surface wind direction is likely at the airport on a sunny afternoon?  <b>a</b> Parallel to the coastline. <b>b</b> Land to sea. <b>c</b> Variable. <b>d Sea to land.</b>
533 id 1185	A mountain breeze (katabatic wind) blows  <b>a down the slope during the night.</b> <b>b</b> up the slope during the day. <b>c</b> down the slope during the day. <b>d</b> up the slope during the night.
534 id 2085	The most frequent wind direction in a valley caused by thermal effects is toward the :  <b>a</b> valley during daylight hours. <b>b</b> mountain at night. <b>c mountain during daylight hours.</b> <b>d</b> valley during daylight as much as at night.
535 id 2443	Which of the following is true of a land breeze?  <b>a It blows from land to water</b> <b>b</b> It blows from water to land <b>c</b> It blows by day <b>d</b> It blows only at noon
536 id 2444	An aircraft is approaching under visual flight rules an airfield whose runway is parallel to the coast. When downwind over the sea, the airfield is on the right. What wind effect should be anticipated on final approach and landing during a sunny afternoon?  <b>a</b> Crosswind from the left <b>b Crosswind from the right</b> <b>c</b> Tailwind <b>d</b> Headwind



<b>537</b> id 2445	An aircraft is approaching under visual flight rules an airfield whose runway is parallel to the coast. When downwind over the sea, the airfield is on the left. What wind effect should be anticipated on final approach and landing during a sunny afternoon ?
	<ul style="list-style-type: none"> <li><b>a Crosswind from the left</b></li> <li>b Crosswind from the right</li> <li>c Tailwind</li> <li>d Headwind</li> </ul>
<b>538</b> id 3811	When otherwise calm and clear conditions exist a station on the shore of a large body of water will experience wind
	<ul style="list-style-type: none"> <li>a continually from land to water</li> <li><b>b from the water in daytime and from the land at night</b></li> <li>c continually from water to the land</li> <li>d from the land in daytime and from the water at night</li> </ul>
<b>539</b> id 3819	The sea breeze is a wind from the sea
	<ul style="list-style-type: none"> <li>a blowing at night in mid-latitudes</li> <li>b that reaches up to the tropopause in daytime</li> <li><b>c occurring only in the lower layers of the atmosphere in daytime</b></li> <li>d occurring only in mid-latitudes and in daytime</li> </ul>
<b>540</b> id 3830	In a mountain-valley wind circulation, the mountain wind blows
	<ul style="list-style-type: none"> <li>a during the day up from the valley</li> <li>b at night up from the valley</li> <li>c during the day down from the mountains</li> <li><b>d at night down from the mountains</b></li> </ul>
<b>541</b> id 6671	Which type wind flows downslope becoming warmer and dryer?
	<ul style="list-style-type: none"> <li>a Land breeze</li> <li>b Valley wind</li> <li><b>c Katabatic wind</b></li> <li>d</li> </ul>

## 50.02.07. Jet streams

### 50.02.07.01. Origin of jet streams

<b>542</b> id 1501	What is the main cause for the formation of a polar front jet stream?
	<ul style="list-style-type: none"> <li>a The varied elevations of the tropopause in the polar front region</li> <li>b The pressure difference, close to the ground, between a high over the Azores and a low over Iceland</li> <li><b>c The north-south horizontal temperature gradient at the polar front</b></li> <li>d Strong winds in the upper atmosphere</li> </ul>

<b>543</b>	Which jetstream is more or less found continuously around the Earth?
id 6538	
a	The polar front jetstream.
b	The arctic front jetstream.
c	<b>The subtropical jetstream.</b>
d	The equatorial jetstream.

## 50.02.07.02. Description and location of jet streams

<b>544</b>	An aircraft is flying through the polar front jet stream from south to north, beneath the core. How would the OAT change, in the northern hemisphere, during this portion of the flight?
id 720	
a	It first increases, then decreases.
b	It increases.
c	<b>It decreases.</b>
d	It remains constant.

<b>545</b>	What is the minimum speed for a wind to be classified as a jet stream?
id 1284	
a	70 kt.
b	50 kt.
c	<b>60 kt.</b>
d	100 kt.

<b>546</b>	A wind sounding in the region of a polar front jet stream gives the following windprofile (Northern hemisphere). 900hPa 220/20kt 800hPa 220/25kt 700hPa 230/35kt 500hPa 260/60kt 400hPa 280/85kt 300hPa 300/100kt 250hPa 310/120kt 200hPa 310/80kt Which system is the jet stream associated with?
id 1285	
a	With an easterly wave.
b	With a cold front.
c	With a ITCZ.
d	<b>With a warm front.</b>

<b>547</b>	Which jet stream is connected with a surface front system?
id 1502	
a	The arctic jet stream
b	<b>The polar front jet stream</b>
c	The subtropical jet stream
d	The equatorial jet stream

<b>548</b>	What is the approximate ratio between height and width for a jet stream cross section?
id 1920	
a	1/1000
b	1/1
c	1/10
d	<b>1/100</b>

549 id 1923	An aircraft is flying from south to north, above the polar front jet stream, at FL 400 in the southern hemisphere. What change, if any, in temperature will be experienced ?
	<ul style="list-style-type: none"> <li>a It stays the same.</li> <li>b It rises.</li> <li>c <b>It falls.</b></li> <li>d It falls and then rises.</li> </ul>
550 id 1924	A wind speed of 350 kt within a jet stream core should be world-wide regarded as:
	<ul style="list-style-type: none"> <li>a a common occurrence.</li> <li>b not possible.</li> <li>c <b>possible but a very rare phenomenon.</b></li> <li>d not unusual in polar regions.</li> </ul>
551 id 1928	An aircraft over Western Europe is crossing a jet stream 2500 FT below its core at right angles. While crossing, the outside temperature is increasing. The prevailing wind is
	<ul style="list-style-type: none"> <li>a headwind.</li> <li>b from the left.</li> <li>c tailwind.</li> <li>d <b>from the right</b></li> </ul>
552 id 1950	Where, as a general rule, is the core of the polar front jet stream to be found?
	<ul style="list-style-type: none"> <li>a Just below the cold-air tropopause.</li> <li>b In the cold air mass.</li> <li>c Just above the warm-air tropopause.</li> <li>d <b>In the warm air mass.</b></li> </ul>
553 id 1952	You cross a jet stream in horizontal flight at approximately right angles. While crossing, in spite of a strong wind of 120 kt, you notice the temperature barely changes.
	<ul style="list-style-type: none"> <li>a You assume the front associated with the jet stream to be very weak with practically no temperature difference between the two airmasses.</li> <li>b <b>This phenomenon is absolutely normal as you are crossing the jet core.</b></li> <li>c Since the result of such readings seems impossible, you will after landing have the instruments tested.</li> <li>d This phenomenon does not surprise you at all, since normally no large temperature differences are possible at these heights.</li> </ul>
554 id 1986	What jet streams are likely to be crossed during a flight from Stockholm to Rio de Janeiro (23°S) at FL 350 in July ?
	<ul style="list-style-type: none"> <li>a A polar front jet stream followed by a subtropical jet stream and later, a second polar front jet stream.</li> <li>b A subtropical jet stream followed by a polar front jet stream.</li> <li>c <b>A polar front jet stream followed by one or two subtropical jet streams.</b></li> <li>d One subtropical jet stream.</li> </ul>

555 id 1987	While crossing a jet stream at right angles in Western Europe (3000 FT below its core) and OAT is decreasing, what would be the prevailing wind?
	<ul style="list-style-type: none"> <li>a A headwind.</li> <li>b Crosswind from the right</li> <li><b>c Crosswind from the left</b></li> <li>d A tailwind.</li> </ul>
556 id 2438	Where, in central Europe, are the highest wind speeds to be found ?
	<ul style="list-style-type: none"> <li>a At about 5500 metres altitude</li> <li><b>b Just below the tropopause</b></li> <li>c Close to the ground</li> <li>d In the stratosphere</li> </ul>
557 id 4132	Which of the following statements concerning jet streams is correct?
	<ul style="list-style-type: none"> <li><b>a In the northern hemisphere both westerly and easterly jet streams occur</b></li> <li>b In the northern hemisphere only westerly jet streams occur</li> <li>c In the southern hemisphere no jet streams occur</li> <li>d In the southern hemisphere only easterly jet streams occur</li> </ul>
558 id 4144	Which of the following statements concerning the core of a polar front jet stream is correct ?
	<ul style="list-style-type: none"> <li>a It lies in the warm air; its pressure surfaces are horizontal at the height of the core</li> <li>b It and its surface projection lie in the warm air</li> <li><b>c It lies at a height where there is no horizontal temperature gradient; the slope of the pressure surfaces at the height of the core is at its maximum</b></li> <li>d It lies in the cold air; the thermal wind reverses direction at the height of the core</li> </ul>
559 id 4145	On a particular day part of a polar front jet stream runs from north to south in the northern hemisphere. This means that
	<ul style="list-style-type: none"> <li>a above the core of the jet the horizontal temperature gradient runs from north to south</li> <li>b the polar air is on the eastern side and above the core of the jet</li> <li>c below the core of the jet the horizontal temperature gradient runs from north to south</li> <li><b>d the polar air is below and to the east of the core of the jet</b></li> </ul>
<b>50.02.07.03. Names, heights and seasonal occurrence</b>	
560 id 719	What name is given to the jet stream lying across India (A) ?
	<ul style="list-style-type: none"> <li>a Polar front jet stream.</li> <li><b>b Equatorial jet stream.</b></li> <li>c Arctic jet stream.</li> <li>d Sub-tropical jet stream.</li> </ul>
561 id 1503	At approximately what altitude is the subtropical jet stream found over Europe?
	<ul style="list-style-type: none"> <li>a FL 500</li> <li>b FL 200</li> <li>c FL300</li> <li><b>d FL 400</b></li> </ul>

<b>562</b> id 1595	What name is given to the jet stream lying over North Africa (B) ?
	<ul style="list-style-type: none"> <li>a Polar front jet stream</li> <li>b Equatorial jet stream</li> <li>c <b>Sub-tropical jet stream</b></li> <li>d Arctic jet stream</li> </ul>
<b>563</b> id 1919	What is the average height of the arctic jet stream core?
	<ul style="list-style-type: none"> <li>a 30000 FT.</li> <li>b <b>20000 FT .</b></li> <li>c 40000 FT.</li> <li>d 50000 FT.</li> </ul>
<b>564</b> id 1921	Which jet stream blows all year round, over the northern hemisphere?
	<ul style="list-style-type: none"> <li>a The arctic jet stream.</li> <li>b The polar night jet stream.</li> <li>c The equatorial jet stream.</li> <li>d <b>The subtropical jet stream.</b></li> </ul>
<b>565</b> id 1922	What is the average height of the jet core within a polar front jet stream?
	<ul style="list-style-type: none"> <li>a 50000 FT.</li> <li>b 20000 FT.</li> <li>c 40000 FT.</li> <li>d <b>30000 FT.</b></li> </ul>
<b>566</b> id 1930	In the month of August you prepare a flight (cruising level FL 370) from Bombay (19°N - 73°E) to Bangkok (13°N - 100°E). What wind conditions can you expect?
	<ul style="list-style-type: none"> <li>a Light winds diagonal to the route.</li> <li>b <b>Headwinds.</b></li> <li>c Tailwinds.</li> <li>d Strong northerly winds.</li> </ul>
<b>567</b> id 1931	What is the most significant difference between an equatorial jet stream and all the other jet streams ?
	<ul style="list-style-type: none"> <li>a Horizontal dimension.</li> <li>b Vertical dimension.</li> <li>c <b>Wind direction.</b></li> <li>d Windspeed.</li> </ul>
<b>568</b> id 1932	Which of the following types of jet streams can be observed all year round?
	<ul style="list-style-type: none"> <li>a Equatorial jet stream / arctic jet stream.</li> <li>b Equatorial jet stream / polar front jet stream.</li> <li>c Arctic jet stream / subtropical jet stream.</li> <li>d <b>Subtropical jet stream / polar front jet stream.</b></li> </ul>

<b>569</b> id 2246	During the winter months in mid-latitudes in the northern hemisphere, the polar front jetstream moves toward the
<ul style="list-style-type: none"> <li>a south and speed decreases</li> <li>b north and speed decreases</li> <li><b>c south and speed increases</b></li> <li>d north and speed increases</li> </ul>	
<b>570</b> id 2558	The equatorial easterly jet is a jetstream that occurs :
<ul style="list-style-type: none"> <li><b>a only in the summer of the northern hemisphere at approx. 45 000 FT</b></li> <li>b only in the winter of the northern hemisphere at approx. 30 000 FT</li> <li>c during the whole year in the southern hemisphere</li> <li>d during the whole year in the northern hemisphere</li> </ul>	
<b>571</b> id 3855	Most strong air currents at higher levels (jet streams) have a westerly direction. There is, however, an important easterly jet stream. When and where is it likely to be encountered ?
<ul style="list-style-type: none"> <li>a In winter along the Russian coast facing the Arctic ocean.</li> <li><b>b In summer from south-east Asia extending over southern India to central Africa.</b></li> <li>c In summer from the Middle East extending over the southern part of the Mediterranean to southern Spain.</li> <li>d Throughout the year to the south of the Azorian high.</li> </ul>	

#### 50.02.07.04. Jet stream recognition

<b>572</b> id 2245	The jetstream and associated clear air turbulence can sometimes be visually identified in flight by
<ul style="list-style-type: none"> <li>a a constant outside air temperature</li> <li>b dust or haze at high level</li> <li><b>c long streaks of cirrus clouds.</b></li> <li>d a high-pressure centre at high level</li> </ul>	

#### 50.02.07.05. CAT: cause, location and forecasting

<b>573</b> id 1283	In which zone of a jet stream is the strongest CAT to be expected ?
<ul style="list-style-type: none"> <li>a About 12000 FT above the core.</li> <li>b The warm air side of the core.</li> <li>c Exactly in the center of the core.</li> <li><b>d The cold air side of the core.</b></li> </ul>	
<b>574</b> id 1989	Which area of a polar front jet stream in the northern hemisphere has the highest probability of turbulence?
<ul style="list-style-type: none"> <li><b>a Looking downstream, the area to the left of the core.</b></li> <li>b Looking downstream, the area to the right of the core.</li> <li>c In the core of the jet stream.</li> <li>d Above the core in the boundary between warm and cold air.</li> </ul>	

<b>575</b> id 4133	Under which of the following conditions is the most severe CAT likely to be experienced ?
<b>a</b>	A jet stream, with great spacing between the isotherms
<b>b</b>	<b>A curved jet stream near a deep trough</b>
<b>c</b>	A westerly jet stream at low latitudes in the summer
<b>d</b>	A straight jet stream near a low pressure area

## 50.02.08. Standing waves

### 50.02.08.01. Origin of standing waves

<b>576</b> id 2243	Which of the following conditions are most favourable to the formation of mountain waves ?
<b>a</b>	Moist unstable air at mountain top and wind of less than 5 knots blowing across the mountain ridge.
<b>b</b>	Unstable air at mountain top altitude and a wind at least 20 knots blowing across the mountain ridge.
<b>c</b>	Either stable or unstable air at mountain top and a wind of at least 30 knots blowing parallel to the mountain ridge.
<b>d</b>	<b>Stable air at mountain top altitude and a wind at least 20 knots blowing across the mountain ridge.</b>

<b>577</b> id 5558	At the top of orographic waves, in mountainous regions, the cloud most likely to be encountered is
<b>a</b>	<b>altocumulus lenticularis.</b>
<b>b</b>	cirrostratus.
<b>c</b>	cirrus.
<b>d</b>	cumulus mediocris.

## 50.03. THERMODYNAMICS

### 50.03.01. Humidity

#### 50.03.01.01. Water vapour in the atmosphere

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**578** | What of the following is the most important constituent in the atmosphere from a weather stand-point ?  
id 3597

- a Nitrogen
- b Water vapour**
- c Oxygen
- d Hydrogen

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**579** | Relative humidity relates to  
id 6399

- a the amount of water vapor present in warm air compared to cold air.
- b actual water vapor present to what could be present.
- c the degree of saturation.
- d both b and c.**

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**580** | Unsaturated air moving downwards is heated at a certain rate of temperature change, called:  
id 6405

- a Dry adiabatic.**
- b Chinook wind.
- c Saturated adiabatic.
- d Ambient lapse rate.

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**581** | Hazardous wind shear is encountered near the ground  
id 6431

- a during periods when the wind velocity is stronger than 35 knots.
- b during periods when the wind velocity is stronger than 35 knots and near mountain valleys.
- c during periods of strong temperature inversion and near thunderstorms.**
- d near mountain valleys and on the windward side of hills or mountains.

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**582** | The inland climate is characterized by:  
id 6440

- a a cold winter and a warm summer.**
- b a warm winter and a cold summer.
- c a dry winter and a wet summer.
- d a wet winter and a dry summer.

---

**583** | The formation of a thermal low pressure is by:  
id 6502

- a Advection of warm air.
- b Advection of cold air.
- c A dynamic effect.
- d A temperature rise in an area in relation to the environment.**



<b>584</b> id 6509	"Instability" low pressure means:  a A lee low. b Orographic low pressure containing condensation heat. c Cold low pressure. <b>d A low pressure receiving energy from released condensation heat.</b>
<b>585</b> id 6512	Wind shear is experienced when:  a The wind has been forecasted to be light and variable. b Neither wind direction nor force changes at altitude. <b>c There is a ground inversion and strong winds above the inversion layer.</b> d Gusts have been forecasted or reported.
<b>586</b> id 6519	List the characteristics of a typical coastal climate:  a Warm summer and cold winter <b>b Chilly summer and mild winter.</b> c Small amounts of precipitation. d Stable weather.
<b>587</b> id 6526	Describe how a cold high pressure changes at altitude:  a Strengthens. b No change. <b>c Weakens and may transfer into a low pressure.</b> d Impossible to predict.
<b>588</b> id 6547	With decreasing temperature and unchanged dew point:  a The relative humidity will decrease. b Water vapor will decrease. c Water vapor will increase. <b>d The relative humidity will increase.</b>
<b>589</b> id 6588	As a parcel of air cools, its ability to hold water vapour:  <b>a Decreases</b> b Increases c Remains unaltered d Depends, whether the parcel is rising or not
<b>590</b> id 6589	As a parcel of air warms, its ability to hold water vapour:  <b>a Decreases</b> <b>b Increases</b> c Remains unaltered d Depends, whether the parcel is rising or not

<b>591</b> id 6612	Moist air is:  a Denser than dry air b Warmer than dry air <b>c Less dense than dry air</b> d Colder than dry air
<b>592</b> id 6649	Where is the usual location of a thermal low?  a Over the arctic region b Over the eye of a hurricane <b>c Over the surface of a dry, sunny region</b> d
<b>593</b> id 6670	Which process causes adiabatic cooling?  a <b>Expansion of air as it rises</b> b Movement of air over a colder surface c Release of latent heat during the vaporization process d
<b>594</b> id 6772	What does this picture depict?  a <b>A westerly wave over Central Europe</b> b A high pressure area over Central Europe c South foehn d North foehn
<b>595</b> id 6803	Where do the westerly waves occur in this picture?  a <b>In Central Europe</b> b Over the North Sea c In the Mediterranean Sea d Over the Baltics
<b>596</b> id 6804	Where do the westerly waves occur in this picture?  a In Central Europe <b>b Over Scandinavia</b> c In the Mediterranean Sea d Over the Baltics
<b>597</b> id 6853	Which statement is true for the lifting of an air parcel?  a <b>Unsaturated parcels cool more rapidly than saturated</b> b Saturated parcels cool more rapidly than unsaturated c An air parcel always cools at the dry adiabatic lapse rate d A stable air mass must be present

- 598** | Refer to the surface chart: Which weather situation can be expected during the day  
id 6885 | at Geneva airport?
- a TAF LSGG 0716 05014KT 5000 OVC015 BECMG 0810 8000 BKN018 BECMG 1013 05015G30KT 9999 SCT025 =
- b TAF LSGG 0716 23016KT 8000 -RA BKN030 OVC070 BECMG 0810 5000 RA BKN020 OVC050 TEMPO 3000 +RA BKN 010 OVC030 BECMG 1215 25014KT 8000 SCT 030 BKN090=**
- c TAF LSGG 0716 26012KT 9999 SCT030 BKN080 TEMPO 1013 25020G35KT 3000 TSRA BKN 030CB BECMG 1316 VRB02KT 3000 BCFG SCT100 =
- d TAF LSGG 0716 VRB03KT 6000 BR SCT020 BECMG0811 23005KT 9999 SCT025TCU PROB40 TEMPO 1216 34012G30KT 3000 TSRA BKN020 CB=

- 599** | Refer to the surface chart: Which weather situation can be expected during the day  
id 6886 | at Zurich airport?
- a TAF LSZH 1601 05020G35KT 8000 BKN015 TEMPO 1720 05018KT 0300 +SHSN VV002=
- b TAF LSZH 1601 23012KT 6000 RA BKN012 OVC030 TEMPO 2023 22025G40KT 1600 +SNRA BKN003 OVC015 =
- c TAF LSZH 1601 VRB02KT 8000 SCT280 BECMG 1618 00000KT 3500 MIFG BECMG 1820 1500 BCFG BECMG 2022 0100 FG VV001 =**
- d TAF LSZH 1601 32008KT 9999 SCT030TCU TEMPO 2201 32020G32KT 3000 TSRA BKN020CB =

- 600** | In which of the following METARs is the probability the biggest for the formation of  
id 6915 | fog the following night?
- a 1850Z 21003KT 8000 SCT250 12/M08 Q1028 NOSIG =
- b 1850Z 06018G30KT 5000 OVC010 04/01 Q1024 NOSIG =
- c 1850Z 15003KT 6000 SCT120 05/04 Q1032 BECMG 1600 =**
- d 1850Z 25010KT 4000 RA BKN012 OBC030 12/10 Q1006 TEMPO 1500 =

### 50.03.01.02. Temperature/dewpoint, mixing ratio,

- 601** | What does dewpoint mean?  
id 1164 |
- a The temperature at which ice melts.
- b The temperature to which a mass of air must be cooled in order to reach saturation.**
- c The freezing level (danger of icing).
- d The temperature at which the relative humidity and saturation vapour pressure are the same.

- 602** | Which of the following is the definition of relative humidity ?  
id 1165 |
- a Ratio between the actual mixing ratio and the saturation mixing ratio X 100**
- b Ratio between air temperature and dewpoint temperature X 100
- c Ratio between water vapour pressure and atmospheric pressure X 100
- d Ratio between water vapour (g) and air (kg) X 100

- 603** | The relative humidity of a sample air mass is 50%. How is the relative humidity of  
id 1166 | this air mass influenced by changes of the amount of water vapour in it?
- a It is not influenced by changing water vapour.
- b It increases with increasing water vapour.**
- c It decreases with increasing water vapour.
- d It is only influenced by temperature.

<b>604</b> id 1167	Relative humidity
	<p>a is not affected by temperature changes of the air.</p> <p>b is not affected when air is ascending or descending.</p> <p><b>c changes when water vapour is added, even though the temperature remains constant.</b></p> <p>d does not change when water vapour is added provided the temperature of the air remains constant.</p>
<b>605</b> id 1168	How, if at all, is the relative humidity of an unsaturated airmass influenced by temperature changes?
	<p>a It increases with increasing temperature.</p> <p>b It is not influenced by temperature changes.</p> <p><b>c It decreases with increasing temperature.</b></p> <p>d It is only influenced by the amount of water vapour.</p>
<b>606</b> id 1169	How does relative humidity and the dewpoint in an unsaturated airmass change with varying temperature?
	<p>a When temperature decreases, the relative humidity and the dewpoint remain constant.</p> <p>b When temperature increases, the relative humidity increases, and the dewpoint decreases.</p> <p>c When temperature decreases, the relative humidity decreases, and the dewpoint increases.</p> <p><b>d When temperature increases, the relative humidity decreases, and the dewpoint remains constant.</b></p>
<b>607</b> id 1170	When a given mass of air descends, what effect will it have on relative humidity?
	<p>a It increases up to 100%, then remains stable.</p> <p>b It increases.</p> <p>c It remains constant.</p> <p><b>d It decreases.</b></p>
<b>608</b> id 1171	During the late afternoon an air temperature of +12°C and a dew point of +5°C were measured. What temperature change must occur during the night in order to induce saturation?
	<p>a It must decrease to +6°C.</p> <p>b It must decrease by 5°C.</p> <p><b>c It must decrease to +5°C.</b></p> <p>d It must decrease to +7°C.</p>
<b>609</b> id 2446	Which of the following statements is true of the dew point of an air mass?
	<p>a It can be used to estimate the air mass's relative humidity even if the air temperature is unknown</p> <p>b It can be higher than the temperature of the air mass</p> <p>c It can be used together with the air pressure to estimate the air mass's relative humidity</p> <p><b>d It can only be equal to, or lower, than the temperature of the air mass</b></p>
<b>610</b> id 4047	Relative humidity
	<p>a is higher in cool air than in warm air</p> <p>b is higher in warm air than in cool air</p> <p><b>c increases if the air is cooled whilst maintaining the vapour pressure constant</b></p> <p>d decreases if the air is cooled whilst maintaining the vapour pressure constant</p>

<b>611</b> id 4048	The difference between temperature and dewpoint is greater in
<ul style="list-style-type: none"> <li>a air with low temperature</li> <li>b moist air</li> <li>c air with high temperature</li> <li><b>d dry air</b></li> </ul>	
<b>612</b> id 4049	The dewpoint temperature
<ul style="list-style-type: none"> <li>a can not be equal to the air temperature</li> <li>b is always lower than the air temperature</li> <li>c is always higher than the air temperature</li> <li><b>d can be equal to the air temperature</b></li> </ul>	
<b>613</b> id 4050	Relative humidity depends on
<ul style="list-style-type: none"> <li>a temperature of the air only</li> <li>b moisture content and pressure of the air</li> <li>c moisture content of the air only</li> <li><b>d moisture content and temperature of the air</b></li> </ul>	
<b>614</b> id 4051	The dewpoint temperature
<ul style="list-style-type: none"> <li>a can be reached by lowering the pressure whilst keeping temperature constant</li> <li><b>b can be reached by cooling the air whilst keeping pressure constant</b></li> <li>c can not be equal to the air temperature</li> <li>d can not be lower than the air temperature</li> </ul>	
<b>615</b> id 4058	The maximum amount of water vapour that the air can contain depends on the
<ul style="list-style-type: none"> <li>a dewpoint</li> <li>b relative humidity</li> <li>c stability of the air</li> <li><b>d air temperature</b></li> </ul>	
<b>616</b> id 5002	Dew point is defined as
<ul style="list-style-type: none"> <li>a the temperature below which the change of state in a given volume of air will result in the absorption of latent heat</li> <li>b the lowest temperature at which evaporation will occur for a given pressure</li> <li>c the lowest temperature to which air must be cooled in order to reduce the relative humidity</li> <li><b>d the temperature to which moist air must be cooled to become saturated at a given pressure</b></li> </ul>	
<b>617</b> id 5552	Relative humidity at a given temperature is the relation between
<ul style="list-style-type: none"> <li>a dew point and air temperature</li> <li>b water vapour weight and dry air weight</li> <li>c water vapour weight and humid air volume</li> <li><b>d actual water vapour content and saturated water vapour content</b></li> </ul>	

<b>618</b> id 6400	The difference between air temperature and dew point temperature is popularly called the "spread". As spread increases, relative humidity:
	<ul style="list-style-type: none"> <li>a increases.</li> <li><b>b decreases.</b></li> <li>c stays the same.</li> <li>d first decreases and then increases.</li> </ul>
<b>619</b> id 6403	If the dew point stays the same, but the air temperature decreases, then:
	<ul style="list-style-type: none"> <li>a The relative humidity will decrease.</li> <li>b Water vapor will decrease.</li> <li>c Water vapor will increase.</li> <li><b>d The relative humidity will increase.</b></li> </ul>
<b>620</b> id 6409	The amount of water vapor which air can hold largely depends on:
	<ul style="list-style-type: none"> <li>a Relative humidity.</li> <li><b>b Air temperature.</b></li> <li>c Stability of air.</li> <li>d Dew point.</li> </ul>
<b>621</b> id 6481	The danger of experiencing fog is greatest when:
	<ul style="list-style-type: none"> <li>a dew point temperature is high.</li> <li>b dew point temperature is low.</li> <li><b>c there is little dispersion.</b></li> <li>d there is great dispersion.</li> </ul>
<b>622</b> id 6483	When temperature drops without changes of dew point temperature:
	<ul style="list-style-type: none"> <li>a The amount of water vapor will increase.</li> <li><b>b Relative humidity will increase.</b></li> <li>c The amount of water vapor will decrease.</li> <li>d Relative humidity will decrease.</li> </ul>
<b>623</b> id 6490	Which conditions result in the formation of frost ?
	<ul style="list-style-type: none"> <li>a The temperature of the collecting surface is at or below freezing and small droplets of moisture are falling.</li> <li>b When dew forms and the temperature is below freezing.</li> <li><b>c Temperature of the collecting surface is below the dew point of surrounding air and the dew point is colder than freezing.</b></li> <li>d None of the above is correct</li> </ul>
<b>624</b> id 6626	A parcel of air is said to be saturated if it has a relative humidity of:
	<ul style="list-style-type: none"> <li>a 50 %</li> <li><b>b 100 %</b></li> <li>c Greater than 90 %</li> <li>d Greater than 80 %</li> </ul>

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**625** | The temperature at which a parcel of air becomes saturated if it cools is called:  
id 6631

- a Dew point temperature**
- b Saturation temperature
- c Condensation temperature
- d Freezing temperature

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**626** | The maximum water in the air depends on the following:  
id 6787

- a Temperature**
- b Density
- c Cloud type
- d None of the above

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**627** | What is relative humidity?  
id 6917

- a The actual water vapour content in the air given in per cent
- b The possible saturated water vapour content at a given temperature, given in per cent
- c A term used to indicate the presence of water vapour, or moisture, in the air
- d The ratio of the actual water vapour content in the air to the saturated water vapour content of the air at a given temperature**

## 50.03.02. Change of state of aggregation

### 50.03.02.01. Condensation, evaporation, sublimation,

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**628** | Which of the following changes of state is known as sublimation?  
id 947

- a Solid direct to liquid
- b Solid direct to vapour**
- c Liquid direct to solid
- d Liquid direct to vapour

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**629** | Clouds, fog or dew will always be formed when:  
id 948

- a relative humidity reaches 98%.
- b water vapour is present.
- c water vapour condenses.**
- d temperature and dew point are nearly equal.

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**630** | In which of the following changes of state is latent heat released ?  
id 1505

- a Liquid to gas
- b Solid to liquid
- c Solid to gas
- d Gas to liquid**

<b>631</b> id 1506	How are high level condensation trails formed that are to be found occasionally behind jet aircraft ?
	<ul style="list-style-type: none"> <li>a Only through unburnt fuel in the exhaust gases</li> <li>b Through a decrease in pressure, and the associated adiabatic drop in temperature at the wing tips while flying through relatively warm but humid air</li> <li><b>c Through water vapour released during fuel combustion</b></li> <li>d In conditions of low humidity, through the particles of soot contained in the exhaust gases</li> </ul>
<b>632</b> id 3988	Supercooled droplets are always
	<ul style="list-style-type: none"> <li>a large and at a temperature below freezing</li> <li>b small and at a temperature below freezing</li> <li><b>c at a temperature below freezing</b></li> <li>d at a temperature below -60°C</li> </ul>
<b>633</b> id 3989	Supercooled droplets can be encountered
	<ul style="list-style-type: none"> <li>a only in winter at high altitude</li> <li>b in winter only in high clouds</li> <li>c only in winter above 10000 FT</li> <li><b>d at any time of the year</b></li> </ul>
<b>634</b> id 4052	When water evaporates into unsaturated air
	<ul style="list-style-type: none"> <li>a relative humidity is decreased</li> <li>b heat is released</li> <li>c relative humidity is not changed</li> <li><b>d heat is absorbed</b></li> </ul>
<b>635</b> id 4056	A super-cooled droplet is
	<ul style="list-style-type: none"> <li>a a water droplet that is mainly frozen</li> <li><b>b a droplet still in liquid state at a temperature below freezing</b></li> <li>c a small particle of water at a temperature below -50°C</li> <li>d a water droplet that has been frozen during its descent</li> </ul>
<b>636</b> id 4115	Supercooled droplets can occur in
	<ul style="list-style-type: none"> <li>a clouds but not in precipitation</li> <li><b>b clouds, fog and precipitation</b></li> <li>c precipitation but not in clouds</li> <li>d clouds but not in fog</li> </ul>
<b>637</b> id 4117	A super-cooled droplet is one that
	<ul style="list-style-type: none"> <li>a is at an above freezing temperature in below freezing air</li> <li>b has frozen to become an ice pellet</li> <li>c has a shell of ice with water inside it</li> <li><b>d remains liquid at a below freezing temperature</b></li> </ul>



<b>638</b> id 5003	The process by which water vapour is transformed directly into ice is known as
	<ul style="list-style-type: none"> <li>a supercooling</li> <li><b>b sublimation</b></li> <li>c supersaturation</li> <li>d radiation cooling</li> </ul>
<b>639</b> id 6471	Fog and cloud formation takes place by:
	<ul style="list-style-type: none"> <li><b>a Condensation.</b></li> <li>b Evaporation.</li> <li>c Sublimation.</li> <li>d None of the above</li> </ul>
<b>640</b> id 6510	What is meant by the expression "Low level windshear" ?
	<ul style="list-style-type: none"> <li><b>a A change of wind direction and force during a limited period of time within a small area.</b></li> <li>b Turbulence containing whirling dust.</li> <li>c The effect of friction.</li> <li>d The wind when blowing across the isobars.</li> </ul>
<b>641</b> id 6560	When water vapor condenses into water droplets, there is a:
	<ul style="list-style-type: none"> <li>a Release of heat energy that increases density of the surrounding air.</li> <li>b Sublimation.</li> <li><b>c Release of heat energy that makes the surrounding air warmer.</b></li> <li>d None of the above.</li> </ul>
<b>642</b> id 6578	A VOLMET broadcast is:
	<ul style="list-style-type: none"> <li>a A recorded broadcast of the METAR for a specific airfield</li> <li>b A special ATC broadcast, to all aircraft on frequency, of a significant change in weather conditions</li> <li><b>c A recorded broadcast of METARs for about 10 airports</b></li> <li>d</li> </ul>
<b>643</b> id 6672	What is the result when water vapor changes to the liquid state while being lifted in a thunderstorm?
	<ul style="list-style-type: none"> <li><b>a Latent heat is released to the atmosphere</b></li> <li>b Latent heat is transformed into pure energy</li> <li>c Latent heat is absorbed from the surrounding air by the water droplet</li> <li>d</li> </ul>
<b>644</b> id 6720	What kind of weather conditions are most common in a stationary high pressure area?
	<ul style="list-style-type: none"> <li><b>a Calm winds and haze</b></li> <li>b Thunderstorm and showers in the summer</li> <li>c Light rain</li> <li>d Gusty winds and clear skies</li> </ul>

<b>645</b> id 6731	The stable layer at some height in the lower troposphere of an old high pressure area in the moderate latitudes is called:
a	Friction inversion
b	Radiation inversion
c	Trade wind
d	<b>Subsidence inversion</b>

<b>646</b> id 6770	What does this picture depict?
a	A westerly wave over Central Europe
b	<b>A high pressure area over Central Europe</b>
c	South foehn
d	North foehn

## 50.03.03. Adiabatic processes

### 50.03.03.01. Adiabatic processes

<b>647</b> id 131	What is the dry adiabatic lapse rate per 1000 FT ?
a	1.5°C
b	2.0°C
c	<b>3.0°C.</b>
d	3.5°C

<b>648</b> id 133	A parcel of unsaturated air is lifted to just below the condensation level and then returned to its original level. What is the final temperature of the parcel of air?
a	Lower than the starting temperature.
b	Higher than the starting temperature.
c	<b>The same as the starting temperature.</b>
d	It depends upon the QFE.

<b>649</b> id 1504	A parcel of moist but not saturated air rises due to adiabatic effects. Which of the following changes ?
a	Specific humidity
b	Absolute humidity
c	Mixing ratio
d	<b>Relative humidity</b>

<b>650</b> id 2072	If a saturated air mass descends down a slope its temperature increases at
a	the same rate as if the air mass were dry.
b	<b>a lower rate than in dry air, as evaporation absorbs heat.</b>
c	a lower rate than in dry air, as condensation gives out heat.
d	a higher rate than in dry air, as it gives up latent evaporation heat.

<b>651</b> id 3991	During an adiabatic process heat is
a	<b>neither added nor lost</b>
b	added
c	lost
d	added but the result is an overall loss

<b>652</b> id 3992	The decrease in temperature, per 100 metres, in an unsaturated rising parcel of air is
<b>a</b>	0.65°C
<b>b</b>	2°C
<b>c</b>	1°C
<b>d</b>	0.5°C
<b>653</b> id 3993	The decrease in temperature, per 100 metres, in a saturated rising parcel of air at lower level of the atmosphere is approximately
<b>a</b>	1.5°C
<b>b</b>	1°C
<b>c</b>	<b>0.6°C</b>
<b>d</b>	0.35°C
<b>654</b> id 4000	The rate of cooling of ascending saturated air is less than the rate of cooling of ascending unsaturated air because:
<b>a</b>	water vapour absorbs the incoming heat from the sun
<b>b</b>	moist air is heavier than dry air
<b>c</b>	water vapour doesn't cool as rapidly as dry air
<b>d</b>	<b>heat is released during the condensation process</b>
<b>655</b> id 4001	If the surface temperature is 15°C , then the temperature at 10000 FT in a current of ascending unsaturated air is:
<b>a</b>	5°C
<b>b</b>	0°C
<b>c</b>	<b>-15°C</b>
<b>d</b>	-5°C
<b>656</b> id 4042	In a layer of air the decrease in temperature per 100 metres increase in height is more than 1°C. This layer can be described as being
<b>a</b>	conditionally stable
<b>b</b>	absolutely stable
<b>c</b>	conditionally unstable
<b>d</b>	<b>absolutely unstable</b>
<b>657</b> id 4043	Which statement is true for a conditionally unstable layer?
<b>a</b>	The wet adiabatic lapse rate is 0.65°C/100m
<b>b</b>	The environmental lapse rate is less than 0.65°C/100m
<b>c</b>	The layer is unstable for unsaturated air
<b>d</b>	<b>The environmental lapse rate is less than 1°C/100m</b>
<b>658</b> id 4044	The stability in a layer is increasing if
<b>a</b>	warm air is advected in the lower part and cold air in the upper part
<b>b</b>	<b>warm air is advected in the upper part and cold air in the lower part</b>
<b>c</b>	warm and moist air is advected in the lower part
<b>d</b>	cold and dry air is advected in the upper part

659 id 4045	Which of the following statements concerning the lifting of a parcel of air is correct ?
	<ul style="list-style-type: none"> <li>a Unsaturated parcels cool less rapidly than saturated parcels</li> <li><b>b Unsaturated parcels cool more rapidly than saturated parcels</b></li> <li>c Unsaturated parcels cool at a rate of 0.65°C per 100m</li> <li>d Saturated parcels always cool at a rate of 0.65°C per 100m</li> </ul>
660 id 4053	A moist but unsaturated parcel of air becomes saturated by
	<ul style="list-style-type: none"> <li>a lowering the parcel to a lower level</li> <li><b>b lifting the parcel to a higher level</b></li> <li>c moving the parcel to an area with lower pressure and equal temperature</li> <li>d moving the parcel to an area with higher pressure and equal temperature</li> </ul>
661 id 4054	A sample of moist but unsaturated air may become saturated by
	<ul style="list-style-type: none"> <li><b>a expanding it adiabatically</b></li> <li>b raising the temperature</li> <li>c lowering the pressure, keeping temperature constant</li> <li>d compressing it adiabatically</li> </ul>
662 id 4070	The height of the lifting condensation level is determined by
	<ul style="list-style-type: none"> <li><b>a temperature and dewpoint at the surface</b></li> <li>b temperature at surface and air pressure</li> <li>c wind and dewpoint at the surface</li> <li>d wet adiabatic lapse rate and dewpoint at the surface</li> </ul>
663 id 4135	A layer is absolutely unstable if the temperature decrease with height is
	<ul style="list-style-type: none"> <li>a between 1°C per 100m and 0.65°C per 100m</li> <li><b>b more than 1°C per 100m</b></li> <li>c 0.65°C per 100m</li> <li>d less than 0.65°C per 100m</li> </ul>
664 id 4136	A layer in which the temperature remains constant with height is
	<ul style="list-style-type: none"> <li>a neutral</li> <li>b unstable</li> <li><b>c absolutely stable</b></li> <li>d conditionally unstable</li> </ul>
665 id 4137	A layer in which the temperature increases with height is
	<ul style="list-style-type: none"> <li>a conditionally unstable</li> <li>b absolutely unstable</li> <li><b>c absolutely stable</b></li> <li>d neutral</li> </ul>

<b>666</b> id 4138	A layer in which the temperature decreases with 1°C per 100m is
	<ul style="list-style-type: none"> <li>a absolutely unstable</li> <li>b absolutely stable</li> <li><b>c neutral for dry air</b></li> <li>d conditionally unstable</li> </ul>
<b>667</b> id 4139	If in a 100 m thick layer the temperature at the bottom of the layer is 10°C and at the top of the layer is 8°C then this layer is
	<ul style="list-style-type: none"> <li><b>a absolutely unstable</b></li> <li>b absolutely stable</li> <li>c conditionally unstable</li> <li>d neutral</li> </ul>
<b>668</b> id 4140	An inversion is
	<ul style="list-style-type: none"> <li><b>a an absolutely stable layer</b></li> <li>b a conditionally unstable layer</li> <li>c an unstable layer</li> <li>d a layer that can be either stable or unstable</li> </ul>
<b>669</b> id 6404	The rate at which descending unsaturated air is heated is about:
	<ul style="list-style-type: none"> <li>a 1.5°C per 100 m.</li> <li>b 1.5°C per 1000 ft.</li> <li>c 3° C per 100 m.</li> <li><b>d 3°C per 1000 ft</b></li> </ul>
<b>670</b> id 6669	Which term applies when the temperature of the air changes by compression or expansion with no heat added or removed?
	<ul style="list-style-type: none"> <li>a Katabatic</li> <li>b Advection</li> <li><b>c Adiabatic</b></li> <li>d Atmospheric</li> </ul>
<b>671</b> id 6673	What weather condition occurs at the altitude where the dewpoint lapse rate and the dry adiabatic lapse rate converge?
	<ul style="list-style-type: none"> <li><b>a Cloud bases form</b></li> <li>b Precipitation starts</li> <li>c Stable air changes to unstable air</li> <li>d</li> </ul>
<b>672</b> id 6674	When saturated air moves downhill, its temperature increases
	<ul style="list-style-type: none"> <li>a at a faster rate than dry air because of the release of latent heat</li> <li><b>b at a slower rate than dry air because vaporization uses heat</b></li> <li>c at a slower rate than dry air because condensation releases heat</li> <li>d</li> </ul>

<b>673</b> id 6775	What does this picture depict?
	<ul style="list-style-type: none"> <li>a A westerly wave over Central Europe</li> <li>b A high pressure area over Central Europe</li> <li><b>c Uniform pressure pattern</b></li> <li>d North foehn</li> </ul>
<b>674</b> id 6791	What can be said about the altimeter indication during a period of 10 minutes, when a uniform pressure pattern prevails?
	<ul style="list-style-type: none"> <li><b>a There will be no visible change in the indication</b></li> <li>b The indication decreases</li> <li>c The indication increases</li> <li>d The altimeter indicates lower when set to 1013,2 hPa</li> </ul>
<b>675</b> id 6807	What can be said about this weather situation?
	<ul style="list-style-type: none"> <li><b>a Air mass thunderstorms may develop during summertime</b></li> <li>b Strong gradient winds may occur over Central Europe</li> <li>c Foehn conditions lead to severe weather south of the Alps</li> <li>d No ground fog will be present in Paris and Zurich during the winter</li> </ul>

## 50.04. CLOUDS AND FOG

### 50.04.01. Cloud formation and description

#### 50.04.01.01. Cooling by adiabatic exp. by advection

<b>676</b> id 952	Which of the following is a cause of stratus forming over flat land?
<b>a Radiation during the night from the earth surface in moderate wind.</b>	
b Unstable air.	
c Convection during the day.	
d The release of latent heat.	
<b>677</b> id 953	Which of the following processes within a layer of air may lead to the building of CU and CB clouds?
a Frontal lifting within stable layers.	
b Radiation.	
c Subsidence.	
<b>d Convection.</b>	
<b>678</b> id 1507	What process in an air mass leads to the creation of wide spread NS, AS and ST cloud coverage?
a Convection process	
b Sinking	
<b>c Lifting</b>	
d Radiation	
<b>679</b> id 3618	Rising air cools because
a it becomes more moist	
b surrounding air is cooler at higher levels	
<b>c it expands</b>	
d it contracts	
<b>680</b> id 4059	Convective clouds are formed
a in stable atmosphere	
<b>b in unstable atmosphere</b>	
c in summer during the day only	
d in mid-latitudes only	
<b>681</b> id 4068	In an unstable layer there are cumuliform clouds. The vertical extent of these clouds depends on the
a air pressure at the surface	
b wind direction	
<b>c thickness of the unstable layer</b>	
d pressure at different levels	

<b>682</b> id 6545	The formation of a cumulonimbus (CB) depends on:
	<ul style="list-style-type: none"> <li>a Warm and humid air.</li> <li>b Instability of thick layers of air.</li> <li>c Some sort of lifting of the air.</li> <li>d <b>all answers are correct.</b></li> </ul>
<b>683</b> id 6546	Formation of an orographic cloud takes place when sufficient wind forces the air over obstacles like a mountain, and further:
	<ul style="list-style-type: none"> <li>a with sufficient height of the mountain the air temperature reaches the dew point thus creating a cloud.</li> <li>b it is true that the necessary amount of lifting of the air depends on the air humidity.</li> <li>c the air is supercooled and unstable.</li> <li>d <b>a) and b) are correct.</b></li> </ul>
<b>684</b> id 6608	Given a surface temperature of +10°C, and a dew point of +5°C, at what height might you expect cumulus clouds to form?
	<ul style="list-style-type: none"> <li>a <b>2000ft</b></li> <li>b 4000ft</li> <li>c 1000ft</li> <li>d 3000 ft</li> </ul>
<b>685</b> id 6625	If a stable air mass is forced to rise, what type of cloud is most likely:
	<ul style="list-style-type: none"> <li>a CU</li> <li>b <b>NS</b></li> <li>c TCU</li> <li>d CB</li> </ul>
<b>686</b> id 6642	What determines the structure or type of clouds which will form as a result of air being forced to ascend?
	<ul style="list-style-type: none"> <li>a <b>The stability of the air before lifting occurs</b></li> <li>b The method by which air is lifted</li> <li>c The relative humidity of the air after lifting occurs</li> <li>d</li> </ul>
<b>687</b> id 6933	Which process in an air mass lead to NS-AS-ST clouds?
	<ul style="list-style-type: none"> <li>a <b>Lifting</b></li> <li>b Sublimation</li> <li>c Evaporation</li> <li>d The presence of a high pressure area</li> </ul>

#### 50.04.01.02. Cloud types, cloud classification

<b>688</b> id 955	Which of the following types of clouds are evidence of unstable air conditions?
	<ul style="list-style-type: none"> <li>a ST, CS.</li> <li>b <b>CU, CB.</b></li> <li>c SC, NS.</li> <li>d CI, SC.</li> </ul>



<b>689</b> id 956	Which of the following clouds are classified as medium level clouds in temperate regions ?
	<ul style="list-style-type: none"> <li>a CI, CC.</li> <li>b SC, NS</li> <li>c <b>AS, AC.</b></li> <li>d CS, ST.</li> </ul>
<b>690</b> id 1172	Which one of the displayed cloud forms is representative of altocumulus castellanus?
	<ul style="list-style-type: none"> <li>a b)</li> <li>b d)</li> <li>c a)</li> <li>d c)</li> </ul>
<b>691</b> id 1173	What is the main composition of clouds classified as "high level clouds"?
	<ul style="list-style-type: none"> <li>a Supercooled water droplets.</li> <li>b <b>Ice crystals.</b></li> <li>c Water droplets.</li> <li>d Water vapour.</li> </ul>
<b>692</b> id 1174	A plain in Western Europe with an average elevation of 500 m (1600 FT) above sea level is covered with a uniform AC layer of cloud during the summer months. At what height above the ground is the base of this cloud to be expected?
	<ul style="list-style-type: none"> <li>a 1500 - 7000 FT above the terrain.</li> <li>b 100 - 1500 FT above the terrain.</li> <li>c <b>7000 - 15000 FT above the terrain.</b></li> <li>d 15000 - 25000 FT above the terrain.</li> </ul>
<b>693</b> id 1175	Which of the following clouds may extend into more than one layer?
	<ul style="list-style-type: none"> <li>a Stratus.</li> <li>b <b>Nimbostratus.</b></li> <li>c Altocumulus.</li> <li>d Cirrus.</li> </ul>
<b>694</b> id 1508	Which of the following cloud is classified as low level cloud ?
	<ul style="list-style-type: none"> <li>a <b>ST</b></li> <li>b CS</li> <li>c AS</li> <li>d CC</li> </ul>
<b>695</b> id 2447	Which types of clouds are typical evidence of stable air conditions?
	<ul style="list-style-type: none"> <li>a <b>ST, AS</b></li> <li>b CU, CB</li> <li>c NS, CU</li> <li>d CB, CC</li> </ul>

<b>696</b> id 2448	Which one of the displayed cloud forms is representative of altocumulus lenticularis?
<b>a</b>	b
<b>b</b>	a
<b>c</b>	d
<b>d</b>	c
<b>697</b> id 2449	Which one of the displayed cloud forms is representative of a cumulonimbus capillatus?
<b>a</b>	d)
<b>b</b>	a)
<b>c</b>	b)
<b>d</b>	c)
<b>698</b> id 2450	Which of the following types of cloud can extend over the low, medium and high cloud levels ?
<b>a</b>	<b>CB</b>
<b>b</b>	AC
<b>c</b>	ST
<b>d</b>	CI
<b>699</b> id 2451	A plain in Western Europe with an average height of 500 m (1600 FT) above sea level is covered with a uniform SC layer of cloud during the summer months. At what height above the ground is the base of this cloud to be expected?
<b>a</b>	7000 - 15000 FT above ground
<b>b</b>	100 - 1500 FT above ground
<b>c</b>	<b>1500 - 7000 FT above ground</b>
<b>d</b>	15000 - 25000 FT above ground
<b>700</b> id 2452	A plain in Western Europe with an average height of 500 m (1600 FT) above sea level is covered with a uniform CC layer of cloud during the summer months. At what height above the ground is the base of this cloud to be expected?
<b>a</b>	<b>15000 - 35000 FT above the terrain</b>
<b>b</b>	7000 - 15000 FT above the terrain
<b>c</b>	1500 - 7000 FT above the terrain
<b>d</b>	100 - 1500 FT above the terrain
<b>701</b> id 2453	Which of the following cloud types is found at high levels?
<b>a</b>	SC
<b>b</b>	<b>CI</b>
<b>c</b>	AS
<b>d</b>	CU
<b>702</b> id 2454	Which of the following cloud types is a medium level cloud ?
<b>a</b>	ST
<b>b</b>	CS
<b>c</b>	<b>AS</b>
<b>d</b>	SC

<b>703</b> id 3810	The presence of altocumulus lenticularis is an indication of the
	<ul style="list-style-type: none"> <li>a presence of valley winds</li> <li>b risk of orographic thunderstorms</li> <li>c development of thermal lows</li> <li><b>d presence of mountain waves</b></li> </ul>
<b>704</b> id 4060	Altostratus clouds are classified as
	<ul style="list-style-type: none"> <li>a convective clouds</li> <li>b low level clouds</li> <li>c high level clouds</li> <li><b>d medium level clouds</b></li> </ul>
<b>705</b> id 4062	A cumulonimbus cloud at moderate latitudes in summer contains
	<ul style="list-style-type: none"> <li>a only water droplets</li> <li><b>b a combination of ice crystals, water droplets and supercooled water droplets</b></li> <li>c only ice crystals</li> <li>d a combination of ice crystals and water droplets</li> </ul>
<b>706</b> id 4063	Strongly developed cumulus clouds are an indication of
	<ul style="list-style-type: none"> <li>a the presence of a low level inversion</li> <li><b>b instability in the atmosphere</b></li> <li>c the presence of warm air aloft</li> <li>d poor surface visibility</li> </ul>
<b>707</b> id 4066	Clouds, classified as being low level are considered to have bases from
	<ul style="list-style-type: none"> <li>a 500 to 1000 FT</li> <li>b 1000 to 2000 FT</li> <li><b>c the surface to 6500 FT</b></li> <li>d 100 to 200 FT</li> </ul>
<b>708</b> id 4067	Which of the following are medium level clouds ?
	<ul style="list-style-type: none"> <li><b>a Altostratus and altocumulus</b></li> <li>b Cirrocumulus and cirrostratus</li> <li>c Cumulonimbus</li> <li>d All convective clouds</li> </ul>
<b>709</b> id 4072	What type of cloud is being described ? A generally grey cloud layer with fairly uniform base and uniform appearance, which may give drizzle or snow grains. When the sun is visible through the cloud, the outline is clearly discernible. Sometimes it appears in the form of ragged patches.
	<ul style="list-style-type: none"> <li><b>a Stratus</b></li> <li>b Altostratus</li> <li>c Nimbostratus</li> <li>d Cirrostratus</li> </ul>

<b>710</b> id 4073	The presence of altocumulus castellanus indicates
	<ul style="list-style-type: none"> <li>a stability in the higher troposphere</li> <li>b strong convection at low height</li> <li><b>c instability in the middle troposphere</b></li> <li>d subsidence in a large part of the troposphere</li> </ul>
<b>711</b> id 4113	Fallstreaks or virga are
	<ul style="list-style-type: none"> <li><b>a water or ice particles falling out of a cloud that evaporate before reaching the ground</b></li> <li>b strong downdraughts in the polar jet stream, associated with jet streaks</li> <li>c gusts associated with a well developed Bora</li> <li>d strong katabatic winds in mountainous areas and accompanied by heavy precipitation</li> </ul>
<b>712</b> id 6410	The family of medium clouds include altostratus, altocumulus and nimbostratus. In moderate latitudes their height of base ranges from:
	<ul style="list-style-type: none"> <li>a 3000 to 5000 feet.</li> <li>b 2000 to 10000 feet.</li> <li>c 2000 to 12000 feet.</li> <li><b>d 6500 to 23000 feet.</b></li> </ul>
<b>713</b> id 6414	High clouds are normally composed of
	<ul style="list-style-type: none"> <li>a Hail.</li> <li>b Water droplets.</li> <li>c Condensation nuclei.</li> <li><b>d Ice crystals.</b></li> </ul>
<b>714</b> id 6416	State the four families of clouds:
	<ul style="list-style-type: none"> <li>a High, medium and low clouds</li> <li>b High and medium clouds, and clouds with extensive vertical development.</li> <li>c Heapclouds, stratified clouds, layered clouds and nimbo clouds.</li> <li><b>d High, medium and low clouds, and clouds with extensive vertical development.</b></li> </ul>
<b>715</b> id 6473	The type of cloud formed when warm, light air rises rapidly into cooler air is a:
	<ul style="list-style-type: none"> <li>a Stratus-type.</li> <li><b>b Cumulus-type.</b></li> <li>c Strato-cumulus type.</li> <li>d Nimbo-status type</li> </ul>
<b>716</b> id 6630	What will be the classification of high level clouds and where will the base be?
	<ul style="list-style-type: none"> <li>a above 14000ft, Nimbus</li> <li>b above 16500ft, Cumuliform</li> <li><b>c above 16500ft, Cirriform</b></li> <li>d above 7000 ft, Cumuliform</li> </ul>

<b>717</b> id 6632	Which of the following types of cloud is most likely to be associated with prolonged and continuous moderate rain?
<b>a NS</b>	
<b>b CU</b>	
<b>c ST</b>	
<b>d CI</b>	
<b>718</b> id 6643	The presence of standing lenticular AC clouds is a good indication of:
<b>a Updrafts and downdrafts</b>	
<b>b An approaching thunderstorm</b>	
<b>c An unstable air mass</b>	
<b>d A stable air mass</b>	
<b>719</b> id 6739	Which clouds, normally found in the medium level, can extend to the other levels?
<b>a NS</b>	
<b>b AS</b>	
<b>c CU</b>	
<b>d ST</b>	
<b>720</b> id 6768	Which cloud represent an altocumulus lenticularis?
<b>a A</b>	
<b>b B</b>	
<b>c C</b>	
<b>d D</b>	
<b>721</b> id 6769	Which cloud represent an altocumulus castellanus?
<b>a A</b>	
<b>b B</b>	
<b>c C</b>	
<b>d D</b>	
<b>722</b> id 6800	What does a CB contain at moderate latitudes in summer?
<b>a A combination of ice crystals, water droplets and supercooled water droplets</b>	
<b>b A combination of ice crystals and water droplets</b>	
<b>c Ice crystals, snow, and water droplets</b>	
<b>d Ice crystals only</b>	
<b>723</b> id 6829	Which of the following are medium level clouds? State the most complete answer:
<b>a AS, AC</b>	
<b>b ST, CU</b>	
<b>c CI, ST</b>	
<b>d NS, CI</b>	

<b>724</b> id 6830	Which of the following are low level clouds? State the most complete answer:
<b>a</b>	AS, AC
<b>b</b>	<b>ST, NS</b>
<b>c</b>	CI, ST
<b>d</b>	NS, CI
<b>725</b> id 6831	Which of the following are high level clouds? State the most complete answer:
<b>a</b>	AS, AC
<b>b</b>	ST, NS
<b>c</b>	<b>CI, CC</b>
<b>d</b>	NS, CI
<b>726</b> id 6832	Which cloud, normally found in the medium level, may extend to the low and high levels?
<b>a</b>	AC
<b>b</b>	<b>NS</b>
<b>c</b>	CI
<b>d</b>	CU
<b>727</b> id 6833	Which cloud type may extend from low to high level (vertical development)?
<b>a</b>	<b>CB</b>
<b>b</b>	NS
<b>c</b>	CI
<b>d</b>	AC
<b>728</b> id 6913	Which of the four radio soundings corresponds with a low stratus layer?
<b>a</b>	A
<b>b</b>	<b>B</b>
<b>c</b>	C
<b>d</b>	D
<b>729</b> id 6914	Which of the four radio soundings corresponds with "OVC015"?
<b>a</b>	A
<b>b</b>	B
<b>c</b>	<b>C</b>
<b>d</b>	D

#### 50.04.01.03. Influence of inversions on cloud devel.

<b>730</b> id 6788	What can be said about the formation of Haze?
<b>a</b>	<b>Dust particles are trapped below an inversion</b>
<b>b</b>	The air is very cold and thus the relative humidity increases
<b>c</b>	A strong lifting action in the atmosphere is necessary
<b>d</b>	A frontal system is the cause

#### 50.04.01.04. Flying conditions in each cloud type

<b>731</b> id 954	What are the characteristics of cumuliform clouds?  <b>a</b> Large water droplets, stability, no turbulence, showers and mainly rime ice. <b>b</b> Small water droplets, stability, no turbulence and extensive areas of rain. <b>c Large water droplets, instability, turbulence, showers and mainly clear ice.</b> <b>d</b> Small water droplets, instability, turbulence, extensive areas of rain and rime ice.
<b>732</b> id 1509	In which of the following conditions is moderate to severe airframe icing most likely to be encountered?  <b>a</b> Within cloud of any type <b>b</b> Below the freezing level in clear air <b>c</b> In clear air above the freezing level <b>d In Nimbostratus cloud</b>
<b>733</b> id 1510	What flying conditions may be encountered when flying in cirrus clouds?  <b>a</b> Average horizontal visibility more than 1000 m; light to moderate rime ice. <b>b</b> Average horizontal visibility less than 500 m; nil icing. <b>c</b> Average horizontal visibility less than 500 m; light to moderate icing. <b>d Average horizontal visibility more than 1000 m; nil icing.</b>
<b>734</b> id 4071	Cumulus clouds are an indication for  <b>a</b> stability <b>b up and downdrafts</b> <b>c</b> the approach of a cold front <b>d</b> the approach of a warm front
<b>735</b> id 6417	Fair weather cumulus clouds often indicate:  <b>a Turbulence at and below the cloud level.</b> <b>b</b> Smooth flying conditions. <b>c</b> Rain and strong winds. <b>d</b> Fog.
<b>736</b> id 6472	Flying conditions associated with cumulonimbus (cb) at summertime are:  <b>a</b> Hazy weather combined with drizzle and turbulence. <b>b</b> Good visibility, intervals of fine weather and little turbulence. <b>c</b> Bad visibility, continuous rain and little turbulence. <b>d Bad visibility in showers and pronounced turbulence.</b>
<b>737</b> id 6809	What do you expect with fair weather Cumulus clouds?  <b>a Turbulence at and below the cloud level</b> <b>b</b> Smooth flight below the cloud level <b>c</b> Continuous rain <b>d</b> Turbulence in and above the clouds up to approximately FL 250

## 50.04.02. Fog, mist, haze

### 50.04.02.01. Radiation fog

<b>738</b> id 1210	At what time of day, or night, is radiation fog most likely to occur?
	<ul style="list-style-type: none"><li>a At sunset.</li><li><b>b Shortly after sunrise.</b></li><li>c Late evening.</li><li>d Shortly after midnight.</li></ul>
<b>739</b> id 1211	What is the average vertical extent of radiation fog?
	<ul style="list-style-type: none"><li>a 2 000 FT.</li><li><b>b 500 FT.</b></li><li>c 5 000 FT.</li><li>d 10 000 FT.</li></ul>
<b>740</b> id 1213	What wind conditions, occurring just before dawn, favour the formation of fog at an airport where the temperature is 15°C and the dew point is 14°C?
	<ul style="list-style-type: none"><li>a Westerly, 10 kt variable.</li><li>b Northerly, 10 kt.</li><li><b>c Calm.</b></li><li>d Easterly, 10 kt.</li></ul>
<b>741</b> id 1214	Which of the following weather conditions favour the formation of radiation fog?
	<ul style="list-style-type: none"><li><b>a Light wind, little or no cloud, moist air.</b></li><li>b Light wind, extensive cloud, dry air.</li><li>c Light wind, extensive cloud, moist air.</li><li>d Strong wind, little or no cloud, moist air.</li></ul>
<b>742</b> id 1511	Which of the following is most likely to lead to the dissipation of radiation fog ?
	<ul style="list-style-type: none"><li>a A build up of a high pressure area resulting in adiabatic warming associated with a sinking air mass</li><li>b A marked decrease in wind velocity close to the ground</li><li>c Ground cooling caused by radiation during the night</li><li><b>d A marked increase in wind velocity near the ground</b></li></ul>
<b>743</b> id 2074	The most likely reason for radiation fog to dissipate or become low stratus is :
	<ul style="list-style-type: none"><li><b>a increasing surface wind speed.</b></li><li>b an increasingly stable atmosphere.</li><li>c surface cooling.</li><li>d a low level temperature inversion.</li></ul>



<b>744</b> id 2078	What are the differences between radiation fog and advection fog ?
	<p><b>a Radiation fog forms due to surface cooling at night in a light wind. Advection fog forms when warm humid air flows over a cold surface.</b></p> <p>b Radiation fog forms only on the ground, advection fog only on the sea.</p> <p>c Radiation fog forms due to night cooling and advection fog due to daytime cooling.</p> <p>d Radiation fog is formed by surface cooling in a calm wind. Advection fog is formed by evaporation over the sea.</p>
<b>745</b> id 2254	What type of fog is most likely to form over flat land during a clear night, with calm or light wind conditions ?
	<p><b>a Radiation.</b></p> <p>b Advection.</p> <p>c Steam.</p> <p>d Orographic.</p>
<b>746</b> id 2455	Under which of these conditions is radiation fog most likely to form?
	<p>a Very dry air</p> <p><b>b Little or no cloud</b></p> <p>c Strong surface winds</p> <p>d Very low temperatures</p>
<b>747</b> id 2456	Which of the following is most likely to lead to the formation of radiation fog?
	<p>a Dry, warm air passing over warm ground</p> <p><b>b Heat loss from the ground on clear nights</b></p> <p>c The passage of fronts</p> <p>d Cold air passing over warm ground</p>
<b>748</b> id 4004	Freezing fog consists of
	<p>a frozen water droplets</p> <p><b>b supercooled water droplets</b></p> <p>c frozen minute snow flakes</p> <p>d ice crystals</p>
<b>749</b> id 4075	When the temperature and dew point are less than one degree apart the weather conditions are most likely to be
	<p>a unlimited visibility</p> <p>b clear and cool</p> <p>c high scattered clouds</p> <p><b>d fog or low cloud</b></p>
<b>750</b> id 4076	The morning following a clear, calm night when the temperature has dropped to the dewpoint, is likely to produce
	<p>a a cold front</p> <p><b>b radiation fog</b></p> <p>c advection fog</p> <p>d good clear weather</p>

<b>751</b> id 4084	Which of the following circumstances most favour the development of radiation fog?
<b>a</b>	Warm moist air at the windward side of a mountain
<b>b</b>	<b>Moist air over land during clear night with little wind</b>
<b>c</b>	Maritime tropical air flowing over cold sea
<b>d</b>	Advection of very cold air over much warmer sea

<b>752</b> id 4172	The range of wind speed in which radiation fog is most likely to form is :
<b>a</b>	above 15 kt
<b>b</b>	between 10 and 15 kt
<b>c</b>	between 5 and 10 kt
<b>d</b>	<b>below 5 kt</b>

<b>753</b> id 6783	Which type of fog do you expect over flat landscape on a clear night, under no wind conditions?
<b>a</b>	<b>Radiation fog</b>
<b>b</b>	Advection fog
<b>c</b>	Orographic fog
<b>d</b>	Steam fog

#### 50.04.02.02. Advection fog

<b>754</b> id 1512	Which of the following conditions is most likely to lead to the formation of advection fog ?
<b>a</b>	Moist cold air moving over a warm surface
<b>b</b>	<b>Moist warm air moving over a cold surface</b>
<b>c</b>	Dry warm air moving over a cold surface
<b>d</b>	Dry cold air moving over a warm surface

<b>755</b> id 2248	Which type of fog is likely to form when air having temperature of 15°C and dew point of 12°C blows at 10 knots over a sea surface having temperatures of 5°C ?
<b>a</b>	Radiation fog
<b>b</b>	<b>Advection fog</b>
<b>c</b>	Steam fog
<b>d</b>	Frontal fog

<b>756</b> id 4077	Advection fog can be formed when
<b>a</b>	cold moist air flows over warmer water
<b>b</b>	cold moist air flows over a warmer surface
<b>c</b>	warm moist air flows over a warmer surface
<b>d</b>	<b>warm moist air flows over a colder surface</b>

<b>757</b> id 4083	Which of the following statements is true concerning advection fog?
<b>a</b>	It forms slowly and disappears rapidly
<b>b</b>	It forms at night or the early morning
<b>c</b>	It forms when unstable air is cooled adiabatically
<b>d</b>	<b>It can be formed suddenly by day or night</b>

<b>758</b>	Fog forming over the sea in a 20KT wind is most likely to be:
id 6633	
<b>a</b>	<b>Advection fog</b>
<b>b</b>	Radiation fog
<b>c</b>	Neither, fog cannot form above 12KT wind speed
<b>d</b>	

<b>759</b>	Name the difference between radiation and advection fog:
id 6836	
<b>a</b>	<b>Vertical movement (radiation fog) versus horizontal movement (advection fog)</b>
<b>b</b>	Advection fog occurs under no wind conditions in a clear night, while radiation fog forms over the sea in a 20 KT wind
<b>c</b>	Flat landscape, a clear night, winds of 10-20KT, for the formation of radiation fog, and mountainous terrain and no wind conditions for advection fog
<b>d</b>	Orographic lifting for radiation fog, and horizontal movement with a 20 KT wind for advection fog

#### 50.04.02.03. Steaming fog

<b>760</b>	Which of the following conditions is most likely to lead to the formation of steam fog (arctic smoke)?
id 1513	
<b>a</b>	Warm air moving over cold water
<b>b</b>	<b>Cold air moving over warm water</b>
<b>c</b>	The sea is warmed by strong radiation from the sun
<b>d</b>	The coastal region of the sea cools at night

<b>761</b>	Steaming fog (arctic sea smoke) occurs in air
id 4078	
<b>a</b>	that is stable
<b>b</b>	with warm mass properties
<b>c</b>	that is absolutely stable
<b>d</b>	<b>with cold mass properties</b>

#### 50.04.02.04. Frontal fog

<b>762</b>	When does frontal fog, also known as mixing fog, occur?
id 1212	
<b>a</b>	When very humid warm air meets with dry cold air.
<b>b</b>	<b>When very humid warm air meets with very humid cold air.</b>
<b>c</b>	When very humid cold air meets with dry warm air.
<b>d</b>	When very dry cold air meets with very dry warm air.

<b>763</b>	Frontal fog is most likely to occur
id 4079	
<b>a</b>	in winter in the early morning
<b>b</b>	in rear of a warm front
<b>c</b>	in summer in the early morning
<b>d</b>	<b>in advance of a warm front</b>

## 50.04.02.05. Orographic fog

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**764** | What conditions are most likely to lead to the formation of hill fog?  
id 2087

- a Humid stable air mass, wind blowing towards the hills.**
- b** High relative humidity and an unstable air mass
- c** Clear skies, calm or light winds, with relatively low humidity
- d** Precipitation which is lifted by the action of moderate winds striking the range

## 50.05. PRECIPITATION

### 50.05.01. Development of precipitation

#### 50.05.01.01. Development of precipitation

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**765** Which form of precipitation from clouds containing only water is most likely to fall in mid-latitudes?  
id 950

- a Hail.
- b Moderate rain with large drops.
- c Heavy rain with large drops.
- d **Drizzle.**

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**766** How does freezing rain develop?  
id 1514

- a Rain falls on cold ground and then freezes
- b **Rain falls through a layer where temperatures are below 0°C**
- c Through melting of sleet grains
- d Through melting of ice crystals

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**767** What enhances the growth rate of precipitation ?  
id 6421

- a Advective action.
- b **Upward currents.**
- c Cyclonic movement.
- d Temperature inversions.

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**768** When a rain shower approaches and passes an airfield, the following will happen:  
id 6480

- a **The temperature drops and dew point rises.**
- b The temperature remains unchanged and dew point drops.
- c The temperature rises and dew point remains unchanged.
- d The temperature rises and dew point drops..

### 50.05.02. Types of precipitation

#### 50.05.02.01. Types of precipitation,

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**769** Which of the following are favourable conditions for the formation of freezing rain?  
id 949

- a **Warm air aloft from which rain is falling into air with a temperature below 0°C.**
- b Water droplets falling from cold air aloft with a temperature below 0°C.
- c Cold air aloft from which hail is falling into air that is warm.
- d An isothermal layer aloft with a temperature just above 0°C through which rain is falling.

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**770** Which one of the following types of cloud is most likely to produce heavy precipitation ?  
id 1176

- a SC.
- b CS.
- c **NS.**
- d ST.

<b>771</b> id 1209	With what type of clouds are showers most likely associated?
	<ul style="list-style-type: none"> <li>a Stratocumulus.</li> <li><b>b Cumulonimbus.</b></li> <li>c Nimbostratus.</li> <li>d Stratus.</li> </ul>
<b>772</b> id 1515	What type of cloud can produce hail showers?
	<ul style="list-style-type: none"> <li>a CS</li> <li>b NS</li> <li><b>c CB</b></li> <li>d AC</li> </ul>
<b>773</b> id 2256	The presence of ice pellets at the surface is evidence that
	<ul style="list-style-type: none"> <li><b>a freezing rain occurs at a higher altitude</b></li> <li>b a cold front has passed</li> <li>c there are thunderstorms in the area</li> <li>d a warm front has passed</li> </ul>
<b>774</b> id 2457	With which of the following types of cloud is "+RA" precipitation most commonly associated?
	<ul style="list-style-type: none"> <li><b>a NS</b></li> <li>b AC</li> <li>c SC</li> <li>d ST</li> </ul>
<b>775</b> id 2458	With what type of cloud is "GR" precipitation most commonly associated?
	<ul style="list-style-type: none"> <li>a CC</li> <li>b AS</li> <li>c ST</li> <li><b>d CB</b></li> </ul>
<b>776</b> id 2459	With what type of cloud is "DZ" precipitation most commonly associated?
	<ul style="list-style-type: none"> <li>a CB</li> <li><b>b ST</b></li> <li>c CC</li> <li>d CU</li> </ul>
<b>777</b> id 2460	Which of the following cloud types is least likely to produce precipitation ?
	<ul style="list-style-type: none"> <li><b>a CI</b></li> <li>b AS</li> <li>c CB</li> <li>d NS</li> </ul>

<b>778</b> id 2461	With what type of cloud is heavy precipitation unlikely during the summer months ?
<b>a</b>	NS, CC
<b>b</b>	CB, ST
<b>c</b>	<b>SC, AS</b>
<b>d</b>	AS, NS
<b>779</b> id 2462	With what type of cloud is "+TSRA" precipitation most commonly associated?
<b>a</b>	<b>CB</b>
<b>b</b>	AS
<b>c</b>	SC
<b>d</b>	NS
<b>780</b> id 3998	Freezing precipitation occurs
<b>a</b>	only in the precipitation of a warm front
<b>b</b>	only in the precipitation of a cold front
<b>c</b>	<b>mainly in the form of freezing rain or freezing drizzle</b>
<b>d</b>	mainly in the form of freezing hail or freezing snow
<b>781</b> id 4055	Precipitation in the form of showers occurs mainly from
<b>a</b>	clouds containing only ice crystals
<b>b</b>	stratified clouds
<b>c</b>	cirro-type clouds
<b>d</b>	<b>convective clouds</b>
<b>782</b> id 4057	Steady precipitation, in contrast to showery precipitation falls from
<b>a</b>	stratiform clouds with severe turbulence
<b>b</b>	convective clouds with little or no turbulence
<b>c</b>	<b>stratiform clouds with little or no turbulence</b>
<b>d</b>	convective clouds with moderate turbulence
<b>783</b> id 4101	Large hail stones
<b>a</b>	only occur in thunderstorms of mid-latitudes
<b>b</b>	<b>are typically associated with severe thunderstorms</b>
<b>c</b>	are entirely composed of clear ice
<b>d</b>	only occur in frontal thunderstorms
<b>784</b> id 4124	Freezing rain occurs when
<b>a</b>	snow falls into an above-freezing layer of air
<b>b</b>	ice pellets melt
<b>c</b>	water vapour first turns into water droplets
<b>d</b>	<b>rain falls into a layer of air with temperatures below 0°C</b>

785 id 4987	<p>The following statements deal with precipitation, turbulence and icing. Select the list containing the most likely alternatives for NS cloud:</p> <p><b>a Precipitation may be snow, sleet or rain. Icing is probable and may range between light and severe. Turbulence is rarely more than moderate.</b></p> <p>b Precipitation may be snow, sleet or rain. Icing and turbulence are frequently severe.</p> <p>c Precipitation is frequently in the form of hail. Icing and turbulence are frequently severe.</p> <p>d Precipitation and icing are usually nil. Turbulence is rarely more than moderate.</p>
786 id 5553	<p>From what type of cloud does drizzle fall ?</p> <p><b>a Stratus.</b></p> <p>b Altostratus</p> <p>c Cumulus</p> <p>d Cirrostratus.</p>
787 id 5554	<p>What type of clouds are associated with rain showers ?</p> <p><b>a Nimbostratus.</b></p> <p>b Towering cumulus and altostratus.</p> <p>c Altostratus and stratus.</p> <p><b>d Towering cumulus and cumulonimbus.</b></p>
788 id 5555	<p>What type of clouds are associated with snow showers ?</p> <p><b>a Nimbostratus</b></p> <p>b Cumulus and altostratus</p> <p>c Altostratus and stratus</p> <p><b>d Cumulus and cumulonimbus</b></p>
789 id 6434	<p>Steady precipitation, in contrast to showers, preceeding a front is an indication of:</p> <p><b>a cumuliform clouds with moderate turbulence.</b></p> <p>b stratiform clouds with moderate turbulence.</p> <p>c cumuliform clouds with little or no turbulence.</p> <p><b>d stratiform clouds with little or no turbulence.</b></p>
790 id 6470	<p>Regarding stratus (st) and nimbostratus (ns):</p> <p><b>a Neither does cause precipitation.</b></p> <p>b St does cause drizzle and ns rain showers.</p> <p>c St does cause rain showers and ns drizzle.</p> <p><b>d St does cause drizzle and ns rain.</b></p>
791 id 6735	<p>What type of cloud is pertinent for showers?</p> <p><b>a CB</b></p> <p>b NS</p> <p>c CI</p> <p>d AS</p>



## 50.06. AIRMASSES AND FRONTS

### 50.06.01. Types of airmasses

#### 50.06.01.01. Description, factors affecting

<b>792</b> id 4119	An airmass is unstable when
<ul style="list-style-type: none"><li>a temperature increases with height</li><li>b temperature and humidity are not constant</li><li>c pressure shows a marked variation over a given horizontal area</li><li><b>d an ascending parcel of air continues to rise to a considerable height.</b></li></ul>	
<b>793</b> id 4120	An airmass is stable when
<ul style="list-style-type: none"><li>a pressure is constant</li><li>b temperature in a given area drops off very rapidly with height</li><li><b>c the vertical motion of a rising parcel of air tends to become weaker and disappears.</b></li><li>d the lapse rate is 1°C per 100 m</li></ul>	
<b>794</b> id 6420	An air mass is a body of air that
<ul style="list-style-type: none"><li>a has similar cloud formations associated with it.</li><li>b creates a wind shift as it moves across the Earth's surface.</li><li><b>c covers an extensive area and has fairly uniform properties of temperature and moisture.</b></li><li>d has extensive turbulence associated with it.</li></ul>	

#### 50.06.01.02. Classification of airmasses, mods.

<b>795</b> id 1205	What are the typical differences between the temperature and humidity between an air mass with its origin in the Azores and an air mass with its origin over northern Russia ?
<ul style="list-style-type: none"><li><b>a The air of the Azores is warmer and more humid than the North-Russian air.</b></li><li>b The North-Russian air is colder and more humid than the air of the Azores.</li><li>c The air of the Azores is warmer and dryer than the North-Russian air.</li><li>d The North-Russian air is warmer and dryer than the air of the Azores.</li></ul>	
<b>796</b> id 1206	Where is the source of tropical continental air that affects Europe in summer?
<ul style="list-style-type: none"><li>a The Azores region.</li><li>b Southern Italy.</li><li>c Southern France.</li><li><b>d The southern Balkan region and the Near East.</b></li></ul>	
<b>797</b> id 1207	Where does polar continental air originate?
<ul style="list-style-type: none"><li>a The region of the Baltic sea.</li><li>b Areas of arctic water.</li><li><b>c Siberian landmass.</b></li><li>d The region of Greenland.</li></ul>	

<b>798</b> id 1208	In which air mass are extremely low temperatures encountered?
	<ul style="list-style-type: none"> <li>a Arctic maritime air.</li> <li>b Polar maritime air.</li> <li>c Tropical continental air.</li> <li><b>d Polar continental air.</b></li> </ul>
<b>799</b> id 1264	In which of the following regions does polar maritime air originate ?
	<ul style="list-style-type: none"> <li>a Baltic Sea</li> <li>b Region of British Isles</li> <li><b>c East of Greenland</b></li> <li>d Black Sea</li> </ul>
<b>800</b> id 1309	What is the classification of the airmass affecting position "Q" at 0600 UTC?
	<ul style="list-style-type: none"> <li>a Tropical continental.</li> <li>b Polar maritime.</li> <li>c Polar continental.</li> <li><b>d Tropical maritime.</b></li> </ul>
<b>801</b> id 6427	Which are characteristics of an unstable cold air mass moving over a warm surface ?
	<ul style="list-style-type: none"> <li>a Cumuliform clouds, turbulence, and poor visibility.</li> <li><b>b Cumuliform clouds, turbulence, and good visibility.</b></li> <li>c Stratiform clouds, smooth air, and poor visibility.</li> <li>d Stratiform clouds, turbulence, and good visibility.</li> </ul>
<b>802</b> id 6443	A warm air mass:
	<ul style="list-style-type: none"> <li><b>a is cooled from below by the base layer.</b></li> <li>b is warmed from below by the base layer.</li> <li>c originates at the equator.</li> <li>d is characterized by sea breeze.</li> </ul>
<b>803</b> id 6535	The stability of an air mass increases by:
	<ul style="list-style-type: none"> <li><b>a cooling of the lower and heating of the upper layers.</b></li> <li>b heating of the lower and cooling of the upper layers.</li> <li>c supply of humidity.</li> <li>d decreasing dispersion.</li> </ul>
<b>804</b> id 6576	A body of air over the ocean is referred to as:
	<ul style="list-style-type: none"> <li>a Polar air</li> <li>b Oceanic air</li> <li><b>c Maritime air</b></li> <li>d</li> </ul>

<b>805</b> id 6601	What are the most common characteristics of a cold air mass moving over a warm surface?
<b>a Cumuliform clouds, turbulence, and good visibility</b> b Cumuliform clouds, turbulence, and poor visibility c Stratiform clouds, smooth air, and poor visibility d Stratiform clouds, turbulence, and good visibility	
<b>806</b> id 6602	What are the most common characteristics of a warm airmass, moving over a cold surface?
a Cumuliform clouds, turbulence, and good visibility b Comuliform clouds, turbulence, and poor visibility <b>c Stratiform clouds, smooth air, and poor visibility</b> d Stratiform clouds, turbulence, and good visibility	
<b>807</b> id 6718	Where does a Polar Cold Airmass has its origin?
<b>a Over the Siberian Landmass</b> b Over the Baltic Sea c Over the Atlantic Ocean d Over the North Pole	
<b>808</b> id 6905	Which air masses do most often contribute to the weather situation in Western Europe?
<b>a Maritime tropical air, maritime polar air</b> b Maritime tropical air, continental polar air c Continental tropical air, continental arctic air d Maritime equatorial air, maritime polar air	
<h2>50.06.02. Fronts</h2> <h3>50.06.02.01. Boundaries between airmasses, general sit.</h3>	
<b>809</b> id 1163	The polar front is the boundary between:
a maritime polar air and continental polar air. b arctic air and polar air. c arctic air and tropical air. <b>d polar air and tropical air.</b>	
<b>810</b> id 1220	What type of low pressure area is associated with a surface front?
a A low on lee side of a mountain. b A cold air pool. <b>c Polar front low.</b> d Heat low.	
<b>811</b> id 1241	At what time of the year, are the paths of north Atlantic lows moving from west to east generally, at their most southerly position?
a Autumn. b Summer. c Spring. <b>d Winter.</b>	

<b>812</b> id 2468	Examining the pictures, on which one of the tracks (dashed lines) is this cross-section to be expected?
a	Track B-C
b	<b>Track B-D</b>
c	Track A-D
d	Track A-E

#### 50.06.02.02. Warm front, associated clouds & weather

<b>813</b> id 1215	What type of fronts are most likely to be present during the winter in Central Europe when temperatures close to the ground are below 0°C, and freezing rain starts to fall?
a	Cold occlusions.
b	<b>Warm fronts, warm occlusions.</b>
c	High level cold fronts.
d	Cold fronts.
<b>814</b> id 1216	Which of the following conditions are you most likely to encounter when approaching an active warm front at medium to low level ?
a	Severe thunderstorms at low altitude.
b	<b>Low cloud base and poor visibility.</b>
c	Extreme turbulence and severe lightning striking the ground.
d	High cloud base, good surface visibility, and isolated thunderstorms.
<b>815</b> id 1217	During a cross-country flight at FL 50, you observe the following sequence of clouds: Nimbostratus, Altostratus, Cirrostratus, Cirrus. Which of the following are you most likely to encounter ?
a	Strong, gusty winds.
b	<b>Decreasing temperatures.</b>
c	A strong downdraught.
d	Increasing temperatures.
<b>816</b> id 1218	What cloud formation is most likely to occur at low levels when a warm air mass overrides a cold air mass?
a	Cumulus.
b	<b>Nimbostratus.</b>
c	Altostratus.
d	Cumulonimbus.
<b>817</b> id 1219	The approximate inclined plane of a warm front is:
a	1/50
b	<b>1/150</b>
c	1/300
d	1/500
<b>818</b> id 1265	In which of the following situations can freezing rain be encountered ?
a	<b>Ahead of a warm front in the winter</b>
b	Ahead of a cold front in the winter
c	Behind a warm front in the summer
d	Ahead of a cold front in the summer

<b>819</b> id 1266	How do air masses move at a warm front ?
	<ul style="list-style-type: none"> <li>a Cold air overrides a warm air mass</li> <li><b>b Warm air overrides a cold air mass</b></li> <li>c Cold air undercuts a warm air mass</li> <li>d Warm air undercuts a cold air mass</li> </ul>
<b>820</b> id 1835	Thunderstorms in exceptional circumstances can occur in a warm front if
	<ul style="list-style-type: none"> <li>a the cold air is convectively stable.</li> <li>b the cold air is convectively unstable.</li> <li><b>c the warm air is convectively unstable.</b></li> <li>d the warm air is convectively stable.</li> </ul>
<b>821</b> id 1837	On an aerodrome, when a warm front is approaching
	<ul style="list-style-type: none"> <li>a QFE increases and QNH decreases.</li> <li>b QFE and QNH increase.</li> <li><b>c QFE and QNH decrease.</b></li> <li>d QFE decreases and QNH increases.</li> </ul>
<b>822</b> id 2080	What types of cloud will you meet flying towards a warm front ?
	<ul style="list-style-type: none"> <li>a Extensive areas of fog. At some 100 km from the front NS begin</li> <li><b>b At some 800 km CS, later AS, and at some 300 km NS until the front</b></li> <li>c At some 500 km AS, later CS and at some 80 km before the front CB</li> <li>d At some 500 km from the front, groups of CB, later at some 250 km thickening AS</li> </ul>
<b>823</b> id 2250	If you have to fly through a warm front when freezing level is at 10000 feet in the warm air and at 2000 feet in the cold air, at which altitude is the probability of freezing rain the lowest ?
	<ul style="list-style-type: none"> <li>a 9000 feet</li> <li><b>b 12000 feet</b></li> <li>c 5000 feet</li> <li>d 3000 feet</li> </ul>
<b>824</b> id 2463	Read this description: "After such a fine day, the ring around the moon was a bad sign yesterday evening for the weather today. And, sure enough, it is pouring down outside. The clouds are making an oppressively low ceiling of uniform grey; but at least it has become a little bit warmer." Which of these weather phenomena is being described?
	<ul style="list-style-type: none"> <li><b>a A warm front</b></li> <li>b A blizzard</li> <li>c Weather at the back of a cold front</li> <li>d A cold front</li> </ul>
<b>825</b> id 4065	The main factor which contributes to the formation of very low clouds ahead of a warm front is the
	<ul style="list-style-type: none"> <li>a saturation of the warm air by rain falling into it and evaporating</li> <li><b>b saturation of the cold air by rain falling into it and evaporating</b></li> <li>c reduction of outgoing radiation due to clouds</li> <li>d warm air moving over a cold surface</li> </ul>

<b>826</b>	The following is true concerning a warm front:
id 6549	
a	The associated type of weather is mostly uniform and offers only small variations.
b	<b>When the air is stable, the clouds are stratiform with uniform precipitation.</b>
c	When the air is unstable, the clouds form vertically and showers will develop in the precipitation area.
d	Both b) and c) are correct.

### 50.06.02.03. Cold front, associated clouds and weather

<b>827</b>	After passing at right angles through a very active cold front in the direction of the cold air, what will you encounter, in the northern hemisphere immediately after a marked change in temperature?
id 1230	
a	A decrease in headwind.
b	A backing in the wind direction.
c	An increase in tailwind.
d	<b>A veering in the wind direction.</b>

<b>828</b>	What type of precipitation would you expect at an active unstable cold front?
id 1267	
a	<b>Showers associated with thunderstorms</b>
b	Freezing rain
c	Light to moderate continuous rain
d	Drizzle

<b>829</b>	What is the relative movement of the two airmasses along a cold front ?
id 1268	
a	Cold air slides over a warm air mass
b	Warm air pushes over a cold air mass
c	<b>Cold air pushes under a warm air mass</b>
d	Warm air pushes under a cold air mass

<b>830</b>	What change in pressure, will occur at point A, during the next hour?
id 1519	
a	Approximately constant pressure
b	A drop in pressure
c	Irregular fluctuations
d	<b>A rise in pressure</b>

<b>831</b>	Which of the following is typical for the passage of a cold front in the summer ?
id 2467	
a	Rapid increase in temperature once the front has passed
b	Mainly layered clouds
c	Rapid drop in pressure once the front has passed
d	<b>Mainly towering clouds</b>

<b>832</b>	The following is true concerning a cold front:
id 6550	
a	A cold front is normally less steep than a warm front.
b	A cold front is normally moving with less speed than a warm front.
c	<b>A cold front is normally steeper than a warm front.</b>
d	Both b) and c) are correct.

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**833** | The weather associated with a cold front may vary from a minor change of wind to  
id 6551 | a serious thunderstorm with low cloud base, bad visibility and strong, gusty winds.  
The type of weather depends on:

- a The amount of humidity in the warm air.
- b The stability of the warm air.
- c The speed and slope of the cold front.

**d All answers are correct.**

---

**834** | You observe the altimeter in a parked aircraft shortly before an active cold front  
id 6763 | passes. What does the altimeter indicate?

**a It increases**

b It decreases

c It is not affected by a pressure change

d The pressure changes are very small and therefore, there is no visible change of the indication

---

**835** | You observe the altimeter in a parked aircraft shortly after an active cold front has  
id 6764 | passed. What does the altimeter indicate?

a It increases

**b It decreases**

c It is not affected by a pressure change

d The pressure changes are very small and therefore, there is no visible change of the indication

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#### 50.06.02.04. Warm sector, associated clouds & weather

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**836** | Over Central Europe what type of cloud cover is typical of the warm sector of a  
id 1224 | depression during winter?

a CI, CS.

**b ST with drizzle.**

c Fair weather CU.

d CU, CB.

---

**837** | What is the surface visibility most likely to be, in a warm sector of tropical maritime  
id 1226 | air, during the summer?

a Very good (greater than 50 km).

b Very poor (less than 1 km).

c Good (greater than 10 km).

**d Moderate (several km).**

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**838** | What cloud cover is typical for a wide warm sector of a polar front depression over  
id 1269 | Central Europe in the summer ?

a BKN CU and CB

**b Fair weather CU**

c Sky clear

d ST with drizzle

---

**839** | What will be the effect on the reading of an altimeter of an aircraft parked on the  
id 2464 | ground during the period following the passage of an active cold front ?

a It will have increased.

b It will remain unchanged.

**c It will have decreased.**

d It will show a small increase or decrease.

---

<b>840</b> id 2465	What will be the effect on the reading of an altimeter of an aircraft parked on the ground shortly before an active cold front passes?
<b>a</b>	It will be decreasing.
<b>b</b>	It will remain unchanged.
<b>c</b>	<b>It will be increasing.</b>
<b>d</b>	It will fluctuate up and down by about +/- 50 feet.

<b>841</b> id 2466	What will be the effect on the reading of an altimeter of an aircraft parked on the ground as an active cold front is passing?
<b>a</b>	<b>It will first increase then decrease.</b>
<b>b</b>	It will remain unchanged.
<b>c</b>	It will first decrease then increase.
<b>d</b>	It will fluctuate up and down by about +/- 50 feet.

#### 50.06.02.05. Weather behind the cold front

<b>842</b> id 1225	What weather conditions are prevalent during the summer, over the North Sea, approximately 300 km behind a quickly moving cold front?
<b>a</b>	<b>Cloud cover mostly scattered, isolated showers.</b>
<b>b</b>	Showers and thunderstorms.
<b>c</b>	Rain covering a large area, 8 octas NS.
<b>d</b>	8 octas CS, AS without precipitation.

#### 50.06.02.06. Occlusions, associated clouds and weather

<b>843</b> id 1222	Where is the coldest air to be found, in an occlusion with cold front characteristics?
<b>a</b>	Ahead of the front.
<b>b</b>	<b>Behind the front.</b>
<b>c</b>	At the surface position of the front.
<b>d</b>	At the junction of the occlusion.

<b>844</b> id 1306	Which one of the tracks (dashed lines) is represented by the cross-section shown on the left ?
<b>a</b>	Track B-A
<b>b</b>	Track C-A
<b>c</b>	<b>Track D-A</b>
<b>d</b>	Track B-C

<b>845</b> id 1307	Which cross-section of air mass and cloud presentation is applicable to the straight line A-B?
<b>a</b>	a
<b>b</b>	<b>c</b>
<b>c</b>	b
<b>d</b>	d

<b>846</b> id 1516	Which of the following describes a warm occlusion?
<b>a</b>	The air mass ahead of the front is drier than the air mass behind the front
<b>b</b>	The air mass behind the front is more unstable than the air mass ahead of the front
<b>c</b>	<b>The coldest air mass is ahead of the original warm front</b>
<b>d</b>	The warmer air mass is ahead of the original warm front



<b>847</b> id 1517	When do cold occlusions occur most frequently in Europe?
	<ul style="list-style-type: none"> <li><b>a Summer</b></li> <li>b Winter</li> <li>c Autumn and winter</li> <li>d Winter and spring</li> </ul>
<b>848</b> id 2071	How are the air masses distributed in a cold occlusion ?
	<ul style="list-style-type: none"> <li><b>a The coldest air mass behind and the less cold air in front of the occlusion; the warm air mass is above ground level.</b></li> <li>b The coldest air in front of and the less cold air is behind the occlusion; the warm air mass is above ground level.</li> <li>c The coldest air in front of and the warm air behind the occlusion; the less cold air is above ground level.</li> <li>d The coldest air behind and the warm air in front of the occlusion; the less cold air mass is above ground level.</li> </ul>
<b>849</b> id 2531	In a polar front depression, an occlusion is called a warm occlusion when the cold air
	<ul style="list-style-type: none"> <li><b>a behind is less cold than the cold air in front, with the warm air at a high altitude.</b></li> <li>b in front of the surface position of front is only at a high altitude.</li> <li>c behind is colder than the cold air in front.</li> <li>d behind is colder than the cold air in front, with the warm air being at a high altitude.</li> </ul>
<b>850</b> id 4085	In a warm front occlusion
	<ul style="list-style-type: none"> <li>a the warm front becomes a front aloft</li> <li>b the warm front overtakes the cold front</li> <li><b>c the warm air is lifted</b></li> <li>d the cold air is lifted</li> </ul>
<b>851</b> id 6506	An occlusion takes place when:
	<ul style="list-style-type: none"> <li><b>a A cold front catches up with a warm front.</b></li> <li>b Warm air displaces cold air.</li> <li>c Cold air displaces warm air.</li> <li>d The front no longer moves.</li> </ul>
<b>852</b> id 6797	Describe a warm occlusion at a polar front depression:
	<ul style="list-style-type: none"> <li><b>a The air behind the cold front is less cold than the air ahead of the warm front</b></li> <li>b The air behind the cold front is colder than the air ahead of the warm front</li> <li>c The air ahead of the warm front is warmer than the air behind the cold front</li> <li>d Both, the air ahead of the warm front and the air behind the cold front are of approximately the same temperature</li> </ul>

<b>853</b>	Describe a cold occlusion at a polar front depression:
id 6798	
a	The air behind the cold front is less cold than the air ahead of the warm front
b	The air ahead of the warm front is colder than the air behind the cold front
c	<b>The air ahead of the warm front is warmer than the air behind the cold front</b>
d	Both, the air ahead of the warm front and the air behind the cold front are of approximately the same temperature

#### 50.06.02.07. Stationary front, assoc. clouds & weather

<b>854</b>	What characterizes a stationary front ?
id 2073	
a	The surface wind usually has its direction perpendicular to the front
b	<b>The surface wind usually has its direction parallel to the front</b>
c	The warm air moves at approximately half the speed of the cold air
d	The weather conditions that it originates is a combination between those of an intense cold front and those of a warm and very active front

<b>855</b>	What is feature of a stationary front?
id 6663	
a	The warm front surface moves about half the speed of the cold front surface
b	Weather conditions are a combination of strong cold front and strong warm front weather
c	<b>Surface winds tend to flow parallel to the frontal zone</b>
d	

#### 50.06.02.08. Movement of fronts and pressure syst.

<b>856</b>	In which approximate direction does the centre of a frontal depression move?
id 1221	
a	<b>In the direction of the warm sector isobars.</b>
b	In the direction of the isobars ahead of the warm front.
c	In the direction of the sharpest pressure increase.
d	In the direction of the isobars behind the cold front.

<b>857</b>	What type of front / occlusion usually moves the fastest?
id 1223	
a	<b>Cold front.</b>
b	Warm front.
c	Cold occlusion.
d	Warm occlusion.

<b>858</b>	This chart shows the weather conditions on the ground at 0600 UTC on May 4.
id 1279	Which of the following reports reflects weather development at Geneva Airport?
a	TAF LSGG 230716 05014KT 5000 OVC015 BECMG 0810 8000 BKN018 BECMG 1013 05015G30KT 9999 SCT025 =
b	<b>TAF LSGG 230716 23016KT 8000 -RA BKN030 OVC070 BECMG 0810 5000 RA BKN020 OVC050 TEMPO 3000 +RA BKN010 OVC030 BECMG 1215 25014KT 8000 SCT030 BKN090 =</b>
c	TAF LSGG 230716 26012KT 9999 SCT030 BKN080 TEMPO 1013 25020G35KT 3000 TSRA or +SHRA BKN030CB BECMG 1316 VRB02KT 3000 BCFG SCT100 =
d	TAF LSGG 230716 VRB03KT 6000 BR SCT020 BECMG 0811 23005KT 9999 SCT025TCU PROB 40 TEMPO 1216 34012G30KT 3000 TSRA BKN020CB =

<b>859</b> id 1280	<p>In Zurich during a summer day the following weather observations were taken:  160450Z 23015KT 3000 +RA SCT008 SCT020 OVC030 13/12 Q1010 NOSIG =  160650Z 25008KT 6000 SCT040 BKN090 18/14 Q1010 RERA NOSIG = 160850Z  25006KT 8000 SCT040 SCT100 19/15 Q1009 NOSIG = 161050Z 24008KT 9999  SCT040 SCT100 21/15 Q1008 NOSIG = 161250Z 23012KT CAVOK 23/16 Q1005  NOSIG = 161450Z 23016KT</p> <p>a A cold front passed the station early in the morning and a warm front during late afternoon  <b>b A warm front passed the station early in the morning and a cold front during late afternoon</b>  c A trough line passed the station early in the morning and a warm front during late afternoon  d Storm clouds due to warm air came close to and grazed the station</p>
<b>860</b> id 1308	<p>Refer to the diagram. Assuming the usual direction of movement, where will this polar frontal wave have moved ?</p> <p>a <b>Position c</b>  b Position a  c Position b  d Position d</p>
<b>861</b> id 1518	<p>In which main direction does a polar front depression move?</p> <p>a <b>Along the front towards the east</b>  b Along the front towards the west  c Across the front towards the north  d Across the front towards the south</p>
<b>862</b> id 2079	<p>Frontal depressions can be assumed to move in the direction of the 2000 feet wind</p> <p>a <b>in the warm sector</b>  b in front of the warm front  c behind the cold front  d at the apex of the wave</p>
<b>863</b> id 2081	<p>A frontal depression passes through the airport. What form of precipitation do you expect ?</p> <p>a Rain or snow during about 12 hours until the warm front arrives. Within the warm sector the rain increases. Improvement on the passage of the cold front.  b Continuous rain or snow while the frontal wave passes for a period of some 24 hours.  c Showers during some 2 hours until the warm front arrives. Drizzle in the warm sector within 12 hours. Rain or snow on the passage of the cold front.  <b>d Continuous rain or snow during 6 hours until the warm front arrives. The precipitation stops for several hours within the warm sector. On the arrival of the cold front, showers within a couple of hours.</b></p>
<b>864</b> id 2469	<p>Refer to the diagram. Assuming the usual direction of movement, to which position will the polar frontal wave have moved ?</p> <p>a Position D  <b>b Position C</b>  c Position A  d Position B</p>

<b>865</b> id 4074	An observer on the northern hemisphere is under influence of the wind system of a depression, which is moving from West to East. The centre of the depression passes to the South of the observer. For this observer the wind direction is
	<ul style="list-style-type: none"> <li>a continuously veering</li> <li><b>b continuously backing</b></li> <li>c initially backing, then veering</li> <li>d initially veering, then backing</li> </ul>
<b>866</b> id 6552	In connection with the passage of a front:
	<ul style="list-style-type: none"> <li>a The pressure will increase before it passes.</li> <li><b>b The pressure will decrease before it passes.</b></li> <li>c After frontal passage, the wind will veer to the left.</li> <li>d Answers b) and c) are correct.</li> </ul>
<b>867</b> id 6607	If a cold front moves at 30 knots, you could expect the warm front to be moving at:
	<ul style="list-style-type: none"> <li><b>a 20 knots</b></li> <li>b 30 knots</li> <li>c 40 knots</li> <li>d 50 knots</li> </ul>
<b>868</b> id 6742	In which direction does the polar front move in this picture?
	<ul style="list-style-type: none"> <li>a A</li> <li>b B</li> <li><b>c C</b></li> <li>d D</li> </ul>
<b>869</b> id 6771	In which direction does the polar front move in this picture?
	<ul style="list-style-type: none"> <li>a A</li> <li>b B</li> <li><b>c C</b></li> <li>d D</li> </ul>
<b>870</b> id 6899	On a summer day, the following observations are made in Zurich: 0450Z 23015KT 3000 +RA SCT008 SCT020 0VC030 13/12 Q1010 NOSIG= 0650Z 25008KT 6000 SCT040 BKN090 18/14 Q1010 RERA NOSIG= 0850Z 25006KT 8000 SCT040 SCT100 19/15 Q1009 NOSIG= 1050Z 24008KT 9999 SCT040 SCT100 21/15 Q1008 NOSIG= 1250Z 23012KT CAVOK 23/16 Q1005 NOSIG= 1450Z 23016KT 9999 SCT040 BKN090 24/17 Q1003
	<ul style="list-style-type: none"> <li><b>a a warm front early in the morning and a cold front late in the afternoon have passed the station</b></li> <li>b a trough line early in the morning and a warm front late in the afternoon have passed the station</li> <li>c an air mass thunderstorm only has passed during the entire day</li> <li>d a cold front early in the morning and a warm front late in the afternoon have passed the station</li> </ul>

<b>871</b> id 6902	On a summer day, the following observations are made in Zurich: 0650Z 19002 KT 3000 SCT280 08/07 Q1019 BECMG 5000 = 0850Z 21004KT 8000 BKN280 10/07 Q1019 NOSIG = 1050Z 22007KT CAVOK 14/06 Q1017 NOSIG = 1250Z 22012KT 9999 SCT040 SCT100 BKN250 16/07 Q1016 NOSIG = 1450Z 22015KT 9999 SCT040 OVC080 17/08 Q1014 NOSIG = 1650Z 23014KT 8000 -RA SCT030 OVC070 16/10 Q1013 TEMPO 30
	<p>a a cold front in the morning, and a second cold front in the afternoon have passed the station</p> <p><b>b a warm front has passed the station during the day</b></p> <p>c a warm front early in the morning, and a cold front in the evening have passed the station</p> <p>d a north foehn weather pattern prevailed the entire day</p>
<b>872</b> id 6903	On a summer day, the following observations are made in Zurich: 0450Z 24009 KT 7000 SCT040 SCT120 15/12 Q1014 NOSIG = 0650Z 24010KT 6000 SCT040 SCT120 17/13 Q1012 NOSIG = 0850Z 23014KT 8000 BKN100 19/13 Q1009 BECMG 26020G35KT TS = 1050Z 28022G33KT 4000 TSRA SCT015 SCT050CB OVC080 16/14 Q1006 BECMG NSW = 1250Z 31016KT 9999 SCT025TCU BKN030 13/09 Q1009 NOSIG = 1450Z 30012
	<p>a a warm front in the morning, and a cold front in the afternoon have passed the station</p> <p>b a warm front has passed the station in the morning, and warm sector weather prevailed in the afternoon</p> <p><b>c a cold front has passed the station in the morning, and rear side weather prevailed in the afternoon</b></p> <p>d a cold front in the morning, and a warm front in the afternoon have passed the station</p>
<b>873</b> id 6906	Refer to the chart: On which airport do you expect the development of the following weather situation: TAF 1019 21010KT 8000 SCT120 OVC180 BECMG 1013 OVC090 TEMPO -RA BECMG 1417 22016KT 5000 RA BKN020 OVC030 TEMPO 3000 +RA BKN012 OVC020 =
	<p>a EGLL</p> <p>b LYBE</p> <p>c LFPO</p> <p><b>d LSZH</b></p>
<b>874</b> id 6907	Refer to the chart: Which airport has the biggest probability for rain at 12.00 UTC?
	<p>a EKCH</p> <p><b>b LFPO</b></p> <p>c LIRF</p> <p>d LEMD</p>
<b>875</b> id 6908	Refer to the chart: Which weather situation do you expect for EGLL at 1150 UTC?
	<p>a 23015KT 8000 SCT100 BKN200 21/07 Q1002 NOSIG=</p> <p>b 32002KT 3000 OBC006 16/12 Q1024 TEMPO 8000 =</p> <p><b>c 17016G28KT 2500 +RA BKN009 OVC 018 12/10 Q0994 BECMG 8000 =</b></p> <p>d 28006KT 4000 -TSRA SCT012 BKN030CB 19/14 Q1022 BECMG NSW =</p>

<b>876</b> id 6909	Refer to the chart: Which weather situation do you expect for LGAT at 1450 UTC?  <b>a 21002KT 6000 BR SCT040 29/16 NOSIG =</b> <b>b 16002KT 0200 R33L/0600N FG VV001 12/12 Q1031 BECMG 0800 =</b> <b>c 26014KT 8000 BKN090 17/12 Q1009 BECMG 4000 =</b> <b>d 23018G35KT 9999 SCT035 10/04 Q0988 NOSIG =</b>
<b>877</b> id 6910	Refer to the chart: On which airport do you expect the development of the following weather situation? TAF 1322 24014G32KT 4000 +TSRA SCT005 BKN015 BKN020CB BECMG 1416 29012KT 9999 BKN030TCU SCT100 TEMPO 8000 SHRA BKN025TCU BECMG 1922 27012KT 9999 SCT030 OVC220 =  <b>a ESSA</b> <b>b EINN</b> <b>c LSZH</b> <b>d EKCH</b>
<b>878</b> id 6911	Refer to the chart: Which airport has the biggest probability for the formation of fog the following night?  <b>a ENFB</b> <b>b EKCH</b> <b>c EINN</b> <b>d LFPO</b>
<b>879</b> id 6932	Where does the frontal depression move in the direction of the 2000 ft wind?  <b>a In the warm sector</b> <b>b At the rear side</b> <b>c Ahead of the warm front</b> <b>d In the center of an occlusion</b>

## 50.07. PRESSURE SYSTEMS

### 50.07.01. Location of the principal pressure areas

#### 50.07.01.01. Location of the principal pressure areas

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**880** | In which of the following areas do surface high pressure systems usually  
id 4977 predominate over the North Atlantic region between 30°N and 65°N and the adjoining land areas during the northern summer?

- a Greenland, SW Europe, NE Canada
- b Greenland, Azores, NE Canada
- c Iceland, SW USA, Azores
- d Azores, SE USA, SW Europe**

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**881** | Select the answer which you consider will complete correctly the following  
id 4988 statement in relation to the main pressure systems affecting the North Atlantic region between 30°N and 65°N. During winter the predominant mean low pressure system at the surface is usually centred over

- a USA
- b Iceland / Greenland**
- c Siberia
- d Azores

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**882** | Considering the North Atlantic region between 30°N and 65°N and the adjacent  
id 4990 land areas during mid-summer, the predominant pressure systems are

- a weak low over NE Canada and Scandinavian high
- b Scandinavian high and Azores high
- c Azores high and weak low over NE Canada**
- d Azores low and Icelandic high

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**883** | Considering the North Atlantic region between 30°N and 65°N together with the  
id 4991 adjacent land areas during winter, the normal disposition of the main anticyclones at the surface is

- a Azores, Siberia**
- b Siberia, Iceland, Canaries
- c NE Canada, Iceland
- d Greenland, Iberian peninsula

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**884** | The formation of high and low pressure areas is normally caused by:  
id 6540

- a Temperature differences.**
- b Humidity.
- c Mechanical turbulence.
- d Storms.

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**885** | Select the answer in relation to the main pressure systems affecting the North  
id 6730 Atlantic region between 30°N and 65°N: During winter the predominant low pressure system at the surface is usually centered over.....

- a USA
- b Siberia
- c Azores
- d Iceland & Greenland**

## 50.07.02. Cyclones & Anticyclones

### 50.07.02.01. Cyclones & Anticyclones, types, gen. properties, c

<b>886</b> id 1238	What is the correct term for the descending air flow in a large high pressure area?
<ul style="list-style-type: none"><li>a Convection.</li><li>b Convergence.</li><li>c Advection.</li><li><b>d Subsidence.</b></li></ul>	
<b>887</b> id 1239	What surface weather is associated with a stationary high pressure region over land in the winter?
<ul style="list-style-type: none"><li>a Thunderstorms.</li><li><b>b A tendency for fog and low ST.</b></li><li>c NS with continuous rain.</li><li>d The possibility of snow showers.</li></ul>	
<b>888</b> id 1240	In temperate latitudes what weather conditions may be expected over land during the summer in the centre of a stationary high pressure zone ?
<ul style="list-style-type: none"><li>a NS.</li><li>b TS, SH.</li><li>c CB, TS.</li><li><b>d Calm winds, haze.</b></li></ul>	
<b>889</b> id 1520	What is the most likely cause of a lack of clouds at higher levels in a stationary high?
<ul style="list-style-type: none"><li>a Instability</li><li>b Rising air</li><li><b>c Sinking air</b></li><li>d Divergence at higher levels</li></ul>	
<b>890</b> id 3615	Subsidence is :
<ul style="list-style-type: none"><li>a vertically upwards motion of air</li><li>b horizontal motion of air</li><li><b>c vertically downwards motion of air</b></li><li>d the same as convection</li></ul>	
<b>891</b> id 4061	The most effective way to dissipate cloud is by
<ul style="list-style-type: none"><li>a convection</li><li><b>b subsidence</b></li><li>c a decrease in temperature</li><li>d a decrease in pressure</li></ul>	
<b>892</b> id 4064	Areas of sinking air are generally cloudless because as air sinks it
<ul style="list-style-type: none"><li>a reaches warmer layers</li><li><b>b is heated by compression</b></li><li>c is heated by expansion</li><li>d loses water vapour</li></ul>	



<b>893</b> id 4087	If the pressure surfaces bulge upwards in all levels then the pressure system is a
a	cold low
b	<b>warm high</b>
c	cold high
d	warm low

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<b>894</b> id 4089	The stable layer at some height in the low troposphere of an older high pressure area in the mid-latitudes is called
a	<b>subsidence inversion</b>
b	friction inversion
c	radiation inversion
d	trade wind inversion

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<b>895</b> id 4090	A blocking anticyclone on the northern hemisphere is
a	<b>a warm anticyclone/quasi stationary/situated between 50°N and 70°N</b>
b	quasi stationary/situated between 50°N and 70°N/ a cold anticyclone
c	situated between 50° and 70°N/a cold anticyclone/steering depressions
d	a cold anticyclone/steering depressions/situated over Scandinavia

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<b>896</b> id 6680	Refer to the upper level chart: Flight path A - B, altimeter setting 1013,2 hPa:
a	Your true altitude is greater in B than in A
b	<b>Your true altitude is greater in A than in B</b>
c	The wind speed is greater in A than in B
d	The wind speed is equal in A and in B

## 50.07.03. Non frontal depressions

### 50.07.03.01. Thermal-, orographic- and sec. depress.

<b>897</b> id 1235	What is encountered during the summer, over land, in the centre of a cold air pool?
a	Nothing (CAVOK).
b	Strong westerly winds.
c	Fine weather CU.
d	<b>Showers and thunderstorms.</b>

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<b>898</b> id 1236	How do you recognize a cold air pool?
a	A cold air pool may only be recognized on the surface chart as a low pressure area.
b	As a high pressure area aloft (e.g. on the 500 hPa chart).
c	<b>As a low pressure area aloft (e.g. on the 500 hPa chart).</b>
d	A cold air pool may only be recognized on the surface chart as a high pressure area.

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<b>899</b> id 1237	What type of air movement is associated with the centre line of a trough?
a	Divergence with lifting.
b	Divergence with descending air.
c	<b>Convergence with lifting.</b>
d	Convergence with descending air.

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**900** | With an intense trough of low pressure over Iceland during wintertime the weather  
id 2261 | likely to be experienced is :

- a strong wind shear, convection and snow showers**
  - b light wind, good visibility and a high cloud ceiling
  - c strong wind with subsidence at low levels
  - d strong wind associated with an almost clear sky
- 

**901** | Extensive cloud and precipitation is often associated with a non frontal thermal  
id 2557 | depression because of :

- a surface divergence and upper level convergence causing widespread descent of air in the depression
  - b surface convergence and upper level divergence causing widespread descent of air in the depression
  - c surface convergence and upper level divergence causing widespread ascent of air in the depression**
  - d surface divergence and upper level convergence causing widespread ascent of air in the depression
- 

**902** | Which is true of a secondary depression in the northern hemisphere?  
id 4993 |

- a It tends to move round the primary in a cyclonic sense**
  - b It tends to move round the primary in an anticyclonic sense
  - c It rapidly closes on, and merges with the primary
  - d It tends to maintain its position relative to the primary
- 

**903** | A trough of low pressure on a surface synoptic chart is an area of  
id 5005 |

- a divergence and subsidence
  - b convergence and widespread ascent**
  - c divergence and widespread ascent
  - d convergence and subsidence
- 

**904** | Which is true of a typical non frontal thermal depression?  
id 5006 |

- a It forms over the ocean in summer
- b It forms over land in summer**
- c It forms over the ocean in winter
- d It forms over land in winter

## 50.07.04. Tropical revolving storms

### 50.07.04.01. Development of tropical revolving storms

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**905** | Where is the most dangerous zone in a tropical revolving storm?  
id 1286 |

- a Anywhere in the eye.
  - b In the wall of clouds around the eye.**
  - c In the centre of the eye.
  - d About 600 km away from the eye.
- 

**906** | What type of clouds, visible even at a long distance, could indicate the presence of  
id 1522 | a tropical revolving storm?

- a NS spread over a large area
- b Frequent SC
- c Excessive accumulation of CU
- d Dense CI**

<b>907</b> id 1933	Tropical revolving storms do not occur in the southeast Pacific and the south Atlantic because
	<ul style="list-style-type: none"> <li>a there is no coriolis force present.</li> <li><b>b of the low water temperature.</b></li> <li>c of the strong southeast wind.</li> <li>d the southeast trade winds cross over into the northern hemisphere.</li> </ul>
<b>908</b> id 1936	What is the main energy source of a tropical revolving storm?
	<ul style="list-style-type: none"> <li>a The equatorial jet stream.</li> <li>b Temperature difference between equatorial low pressure trough and subtropical high pressure belt.</li> <li>c Cold air advancing from temperate latitudes.</li> <li><b>d Latent heat released from condensing water vapour.</b></li> </ul>
<b>909</b> id 4128	What is the track most likely to be taken by a hurricane in the Carribean area?
	<ul style="list-style-type: none"> <li>a West in the earlier stages and later south east</li> <li>b East</li> <li>c West deep into the U.S.</li> <li><b>d West in the earlier stages and later north east</b></li> </ul>
<b>910</b> id 4130	Which statement is true for hurricanes in the North Atlantic?
	<ul style="list-style-type: none"> <li><b>a From the earth's surface up to the tropopause the core is warmer than its surroundings</b></li> <li>b They intensify rapidly after landfall</li> <li>c The diameter is 50-500 m</li> <li>d Their greatest frequency of occurrence is in winter</li> </ul>
<b>911</b> id 4994	Why do tropical revolving storms tend to develop mostly in the western parts of the tropical oceans?
	<ul style="list-style-type: none"> <li>a Because there is a maximal temperature difference between land mass and sea</li> <li>b Because they are areas in which there is a strong progressive windshear with increase of height</li> <li><b>c Because there is a maximum of humidity as a result of the trade winds`long sea passage</b></li> <li>d Because the gulf formation of the coastlines triggers a strong rotary circulation</li> </ul>

## 50.07.04.02. Origin and local names, location

<b>912</b> id 1233	What is the likely track for a hurricane in the Carribean area?
	<ul style="list-style-type: none"> <li><b>a West in the earlier stages and later turning north east.</b></li> <li>b East then south.</li> <li>c West deep into the USA.</li> <li>d West in the earlier stages and later turning south east.</li> </ul>
<b>913</b> id 1234	During which seasons are hurricanes most likely to appear in the northern hemisphere?
	<ul style="list-style-type: none"> <li>a All seasons.</li> <li>b Winter.</li> <li>c Winter and spring.</li> <li><b>d Summer and autumn.</b></li> </ul>

914 id 1521	On which coast of North America, is the danger of tropical revolving storms the greatest?
	<ul style="list-style-type: none"> <li>a NE coast</li> <li>b W coast</li> <li>c N coast</li> <li><b>d SE coast</b></li> </ul>
915 id 1918	At what time of the year are typhoons most likely to occur over the southern islands of Japan?
	<ul style="list-style-type: none"> <li>a January to May.</li> <li>b September to January.</li> <li><b>c July to November.</b></li> <li>d May to July.</li> </ul>
916 id 1953	During which months is the Hurricane season in the Caribbean?
	<ul style="list-style-type: none"> <li>a January until April.</li> <li>b October until January.</li> <li><b>c July until November.</b></li> <li>d April until July.</li> </ul>
917 id 2532	The region of the globe where the greatest number of tropical revolving storms occur is
	<ul style="list-style-type: none"> <li>a the northern Indian ocean, affecting India, Sri Lanka and Bangladesh.</li> <li>b the caribbean sea, affecting the West Indies, Mexico and the south-east coastline of the USA.</li> <li>c the south-western Indian ocean, affecting Madagascar, Mauritius and the island of Réunion.</li> <li><b>d the north-west Pacific, affecting Japan, Formosa, Korea and the Chinese coastline.</b></li> </ul>
918 id 4992	The arrows labelled "r" represent the mean tracks of tropical revolving storms which occur mainly from
	<ul style="list-style-type: none"> <li>a June to October and are called typhoons</li> <li>b December to April and are called tornadoes</li> <li><b>c December to April and are called cyclones</b></li> <li>d June to October and are called hurricanes</li> </ul>
919 id 4995	The arrows labelled "s" represent the mean tracks of tropical revolving storms which occur mainly from
	<ul style="list-style-type: none"> <li>a December to April and are called cyclones</li> <li><b>b May to November and are called cyclones</b></li> <li>c May to November and are called hurricanes</li> <li>d December to April and are called typhoons</li> </ul>
920 id 4997	The arrows labelled "u" represent the tracks of tropical revolving storms which occur mainly from
	<ul style="list-style-type: none"> <li>a January to March and are called willy-willies</li> <li><b>b July to October and are called typhoons</b></li> <li>c May to July and are called cyclones</li> <li>d December to April and are called tornadoes</li> </ul>

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**921** | When, if at all, is a tropical revolving storm most likely to affect Darwin, on the  
**id 4998** | central north coast of Australia?

- a December to April**
- b May to July**
- c August to October**
- d Not experienced at Darwin**

## 50.08. CLIMATOLOGY

### 50.08.01. Climatic zones

#### 50.08.01.01. General seasonal circulation in the tropos.

<b>922</b> id 1984	At about what geographical latitude as average is assumed for the zone of prevailing westerlies?
<b>a 50°N.</b>	
<b>b 10°N.</b>	
<b>c 30°N.</b>	
<b>d 80°N.</b>	
<b>923</b> id 3852	The reason for the fact, that the Icelandic low is normally deeper in winter than in summer is that
<b>a</b> the strong winds of the north Atlantic in winter are favourable for the development of lows.	
<b>b</b> the low pressure activity of the sea east of Canada is higher in winter.	
<b>c the temperature contrasts between arctic and equatorial areas are much greater in winter.</b>	
<b>d</b> converging air currents are of greater intensity in winter.	

#### 50.08.01.02. Tropical rain climate, dry climate,

<b>924</b> id 3856	What is the type, intensity and seasonal variation of precipitation in the equatorial region ?
<b>a</b> Precipitation is generally in the form of showers but continuous rain occurs also. The greatest intensity is in July.	
<b>b</b> Warm fronts are common with continuous rain. The frequency is the same throughout the year	
<b>c Rainshowers, hail showers and thunderstorms occur the whole year, but frequency is highest during two periods: April-May and October-November.</b>	
<b>d</b> Showers of rain or hail occur throughout the year; the frequency is highest in January.	
<b>925</b> id 6752	In which month does the humid monsoon in India start?
<b>a June</b>	
<b>b</b> December	
<b>c</b> March	
<b>d</b> October	

### 50.08.02. Tropical climatology

#### 50.08.02.02. Seasonal variations of weather and wind,

<b>926</b> id 1231	When are the rainy seasons in equatorial Africa?
<b>a March to May and October to November.</b>	
<b>b</b> December to February and July to October.	
<b>c</b> March to May and August to October.	
<b>d</b> April to July and December to February.	

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**927** | During July flights from Bangkok (13°N - 100°E) to Karachi (25°N - 67°E)  
id 1985 | experience an average tailwind component of 22 kt. In January the same flights, also operating at FL 370, have an average headwind of 50 kt. What is the reason for this difference?

- a The flights happen to be in the area of the polar front jet stream.
- b The flights during the summer encountered, by chance, very unusual, favorable conditions.
- c The flights in January encountered, by chance, very unusual, adverse conditions.
- d The wind components correspond to the seasonal change of the regional wind system.**

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**928** | Which of the following statements concerning trade winds is correct?  
id 4147 |

- a They reach up to the tropopause and are more pronounced over the continents
- b They occur only in the lower part of the troposphere and more pronounced over the oceans**
- c They reach up to the tropopause and are more pronounced over the oceans
- d They occur only in the lower part of the troposphere and are more pronounced over the continents

### 50.08.02.03. Intertropical convergence (ITCZ), weather

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**929** | Which one of the following statements regarding the intertropical convergence  
id 1227 | zone (ITCZ) is correct?

- a The ITCZ does not change its position during the course of the year.
- b Thunderstorms seldom occur within the area of the ITCZ.
- c The ITCZ is always associated with a strong jet stream.
- d Frequent and widespread thunderstorms are to be expected within the area of the ITCZ.**

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**930** | In which of the following bands of latitude is the intertropical convergence zone  
id 1228 | most likely to be encountered in January, between Dakar and Rio de Janeiro?

- a 8° - 12°S.
- b 3° - 8°S.
- c 0° - 7°N.**
- d 7° - 12°N.

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**931** | Which of the following best describes the intertropical convergence zone ?  
id 1232 |

- a The zone where the Harmattan meets the northeasterly trade winds over Africa.
- b The zone where the trade winds of the northern hemisphere meet those of the southern hemisphere.**
- c The zone where cold fronts form in the tropics.
- d The zone where the west winds meet the subtropical high pressure belt.

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**932** | Where, during a flight from Marseille to Dakar, in July, may the ITCZ be  
id 1524 | encountered?

- a At the latitudes of Algeria
- b Near the Canary Islands
- c At the latitudes of Gibraltar
- d In the vicinity of Dakar**

<b>933</b> id 1525	Which wind systems converge on the ITCZ, when it lies at the equator?
	<ul style="list-style-type: none"> <li><b>a SE trade winds and NE trade winds</b></li> <li>b SW monsoon and NW monsoon</li> <li>c SW monsoon and NW trade winds</li> <li>d NW monsoon and SW trade winds</li> </ul>
<b>934</b> id 2530	The intertropical convergence zone (ITCZ) particularly affects
	<ul style="list-style-type: none"> <li>a western Africa, at a latitude of 25°N in July.</li> <li><b>b western Africa between 10° and 20°N and the northern coasts of the Arabian sea in July.</b></li> <li>c the atlantic ocean, between latitudes 10°N and 30°N, depending on the time of year.</li> <li>d western Africa, where it is situated between the 10°N and 30°N parallels, depending on the time of the year.</li> </ul>
<b>935</b> id 3853	Which one of the following statements is correct concerning the movement of the ITCZ in the region of West Africa?
	<ul style="list-style-type: none"> <li>a It reaches its maximum southerly position of 5° S in January</li> <li><b>b It reaches its maximum northerly position of 15° - 20° N in July</b></li> <li>c It oscillates during the year between 10 degrees North and 10 degrees South.</li> <li>d It oscillates during the year between the Equator and 10 degrees North.</li> </ul>
<b>936</b> id 4018	What weather conditions are most likely to affect an approach to Dakar during July?
	<ul style="list-style-type: none"> <li>a Reduced visibility due to the rising sand of the Harmattan</li> <li>b Dry and clear due to the influence of the Azores high pressure system</li> <li>c Generally clear skies - NW trade winds</li> <li><b>d Wet and thundery due to the proximity of intertropical convergence zone (ITCZ)</b></li> </ul>
<b>937</b> id 4092	Which of the following statements concerning the intertropical convergence zone is true?
	<ul style="list-style-type: none"> <li><b>a There are frequent occurrences of CB</b></li> <li>b It lies totally in the northern hemisphere in July and totally in the southern hemisphere in January</li> <li>c It does not change its position over the oceans during the year</li> <li>d It is an area of low pressure and low relative humidity</li> </ul>
<b>938</b> id 5001	The line labelled "Y" represents the
	<ul style="list-style-type: none"> <li>a mean position of the temperate/tropical front during July</li> <li>b axis of the subtropical jet stream during January</li> <li>c mean position of the intertropical convergence zone (ITCZ) during July</li> <li><b>d mean position of the intertropical convergence zone (ITCZ) during January</b></li> </ul>
<b>50.08.02.04. Climatic elements relative to the area</b>	
<b>939</b> id 1229	What weather conditions are indications of the summer monsoon in India?
	<ul style="list-style-type: none"> <li>a Fog.</li> <li>b Stratus clouds and drizzle.</li> <li>c Sandstorms.</li> <li><b>d Thunderstorms, showers of heavy rain.</b></li> </ul>



940 id 1254	What winds are mainly associated with the winter monsoon in the monsoon regions of the Indian sub-continent ?
	<ul style="list-style-type: none"> <li>a <b>Northeasterly winds bringing dry and hazy air.</b></li> <li>b Southwesterly winds carrying warm and humid air.</li> <li>c Northwesterly winds bringing dry and hazy air.</li> <li>d Southeasterly winds carrying warm and humid air.</li> </ul>
941 id 1282	What name is given to the low level wind system between the subtropical high pressure belt and the equatorial trough of low pressure (ITCZ) ?
	<ul style="list-style-type: none"> <li>a <b>Trade winds.</b></li> <li>b Doldrums.</li> <li>c Westerly winds.</li> <li>d Monsoon.</li> </ul>
942 id 1526	From which direction do the trade winds blow, in the southern hemisphere?
	<ul style="list-style-type: none"> <li>a N</li> <li>b NE</li> <li>c SW</li> <li>d <b>SE</b></li> </ul>
943 id 1983	In which month does the humid monsoon in India start?
	<ul style="list-style-type: none"> <li>a In October.</li> <li>b <b>In June.</b></li> <li>c In December.</li> <li>d In March.</li> </ul>
944 id 3854	What is the name of the wind or airmass which gives to the main part of India its greatest proportion of precipitation?
	<ul style="list-style-type: none"> <li>a Indian, maritime tropical air mass.</li> <li>b South-east trade wind.</li> <li>c <b>South-west monsoon.</b></li> <li>d Winter monsoon.</li> </ul>
945 id 4019	Weather conditions at Bombay during early July are mainly influenced by the
	<ul style="list-style-type: none"> <li>a NE monsoon and the proximity of the ITCZ</li> <li>b <b>SW monsoon</b></li> <li>c passage of frontal system generated in the south indian ocean</li> <li>d high incidence of tropical revolving storms originating in the persian gulf</li> </ul>
946 id 4020	Weather conditions at Bombay during January are mainly influenced by the
	<ul style="list-style-type: none"> <li>a SW monsoon</li> <li>b <b>NE monsoon</b></li> <li>c NW monsoon</li> <li>d SE monsoon</li> </ul>

<b>947</b> id 4091	The transition from SW to NE monsoon in India occurs in
	<ul style="list-style-type: none"> <li><b>a September, October, November</b></li> <li>b July, August, September</li> <li>c December, January, February</li> <li>d February, March, April</li> </ul>
<b>948</b> id 4094	The prevailing surface wind in the area of the west coast of Africa north of the equator (gulf of Guinea) is a
	<ul style="list-style-type: none"> <li>a NE monsoon in winter and SE tradewind in summer</li> <li>b SW monsoon in winter and NE monsoon in summer</li> <li><b>c NE tradewind in summer and SE tradewind in winter</b></li> <li>d SW monsoon in summer and NE tradewind in winter</li> </ul>
<b>949</b> id 4149	Along the West coast of India the prevailing winds are the
	<ul style="list-style-type: none"> <li>a NE monsoon in July and a SW monsoon in January</li> <li>b SW monsoon in July and a SE monsoon in January</li> <li><b>c SW monsoon in July and a NE monsoon in January</b></li> <li>d SE monsoon in July and a SW monsoon in January</li> </ul>
<b>950</b> id 6521	To build a hurricane, the following conditions, among others, must be fulfilled:
	<ul style="list-style-type: none"> <li><b>a The surface temperature at least +27°C, and the building area 8 - 15° away from the equator.</b></li> <li>b Building area 5 - 6° away from the equator.</li> <li>c Building area in the equatorial area.</li> <li>d The hurricane must be in the western areas of the ocean.</li> </ul>
<b>951</b> id 6799	Which is the greatest region of tropical revolving storms?
	<ul style="list-style-type: none"> <li><b>a The north-west Pacific, affecting Japan, Formosa, Korea and the Chinese coastline</b></li> <li>b The Bermuda Triangle</li> <li>c The Carribean Sea, affecting Florida and the Bahamas</li> <li>d The Gulf of Mexico, affecting Texas, Louisiana and Florida</li> </ul>

## 50.08.02.05. Easterly waves

<b>952</b> id 1253	What weather is prevalent in the zone of easterly waves?
	<ul style="list-style-type: none"> <li><b>a Thunderstorms and rain.</b></li> <li>b Continuous rain.</li> <li>c Clear skies.</li> <li>d Frontal weather.</li> </ul>

- 
- 953** | An easterly wave is a  
id 4093
- a wave in a trade wind belt, moving from east to west, with severe convective activity in rear of its trough**
  - b wave-like disturbance in the monsoon regime of India, moving from east to west, with severe convective activity ahead of its trough
  - c small scale wave disturbance in the tropics, moving from east to west, with severe convective activity ahead of its trough
  - d disturbance in the higher levels associated with the equatorial easterly jet, moving from east to west, with severe convective activity in rear of its trough

## 50.08.03. Typical weather situations in mid-latitudes

### 50.08.03.01. Westerly waves

- 
- 954** | Which typical weather condition is shown by the design for the area of Central Europe ?  
id 1281
- a Westerly waves**
  - b Uniform pressure pattern
  - c Cutting wind
  - d Easterly waves

### 50.08.03.02. High pressure area

- 
- 955** | Which typical weather condition is shown by the design for northern Italy?  
id 1830
- a Westerly wind
  - b Warm southerly wind
  - c High pressure**
  - d Easterly wind

- 
- 956** | The attached chart shows the weather conditions on the ground at 1200 UTC on May 23. Which of the following reports reflects weather development at Zurich Airport?  
id 1831
- a TAF LSZH 101601 05020G35KT 8000 BKN015 TEMPO 1720 05018KT 0300 +SHSN VV002 =
  - b TAF LSZH 101601 VRB02KT 8000 SCT280 BECMG 1618 00000KT 3500 MIFG BECMG 1820 1500 BCFG BECMG 2022 0100 FG VV001 =**
  - c TAF LSZH 101601 23012KT 6000 RA BKN012 OVC030 TEMPO 2023 22025G40KT 1600 +SNRA BKN003 OVC015 =
  - d TAF LSZH 101601 32008KT 9999 SCT030TCU TEMPO 2201 32020G32KT 3000 TSRA BKN020CB =

- 
- 957** | The weather most likely to be experienced at position "R" is  
id 4021
- a early morning fog lifting to low stratus
  - b fine and warm with little or no cloud**
  - c increasing high and medium cloud cover and generally good visibility
  - d mainly overcast with anticyclonic gloom

### 50.08.03.03. Uniform pressure pattern

**958** Which typical weather situation is shown on the weather chart ? (spacing of the  
id 1305 isobars: 5 hPa)

- a Uniform pressure pattern.**
- b Cutting wind.
- c West wind condition.
- d Warm south wind condition (Foehn).

**959** With a uniform pressure pattern and no thunderstorms around, what will the  
id 2470 indication of the aneroid altimeter of an aircraft parked on the ground do over a period of about ten minutes?

- a Apparently nothing, because any changes would be small.**
- b Increase rapidly.
- c Show strong fluctuations.
- d Decrease rapidly.

### 50.08.03.04. Cold pool

**960** A cold pool  
id 4088

- a normally disappears at night and occurs almost exclusively in summer
- b develops usually in winter when very unstable maritime polar or maritime arctic air currents stream southwards along the eastern side of an extensive ridge of high pressure, in association with occluded systems
- c is usually most evident in the circulation and temperature fields of the middle troposphere and may show little or no sign on a surface chart**
- d occurs frequently in winter to the south of the Alps when this region is under the influence of cold north-westerly airstream

**961** What kind of weather conditions do you encounter in a cold air pool centre?  
id 6719

- a Showers and thunderstorms**
- b Light drizzle
- c Light rain
- d Mostly clear skies

### 50.08.04. Local seasonal weather and winds

#### 50.08.04.01. Local seasonal weather and wind-

**962** Which of the following zones is most likely to encounter little or no precipitation?  
id 951

- a The north side of the alps with a prevailing Foehn from the south.**
- b The north side of the alps with a prevailing Foehn from the north.
- c Frontal zones.
- d Occlusions.

**963** For an aircraft what are the meteorological dangers associated with a Harmattan  
id 1181 wind?

- a Sand up to FL 150.
- b Thunderstorms.
- c Dust and poor visibility.**
- d Hail.

964 id 1182	What is the strong relatively cold katabatic wind, blowing down the northern Adriatic coast, mainly during the winter and spring called?
	<ul style="list-style-type: none"> <li>a Mistral.</li> <li>b Ghibli.</li> <li>c <b>Bora.</b></li> <li>d Scirocco.</li> </ul>
965 id 1252	Which weather phenomena are typical for the northern side of the Alps with stormy winds from the south (Foehn)?
	<ul style="list-style-type: none"> <li>a <b>Good visibility, turbulence.</b></li> <li>b Continuous precipitation, severe turbulence.</li> <li>c Decrease in temperature, moderate to severe icing.</li> <li>d Icing, huge mass of clouds.</li> </ul>
966 id 1523	What is characteristic of the pamperos?
	<ul style="list-style-type: none"> <li>a Foehn conditions in the Spanish Pyrenees</li> <li>b Katabatic winds in the Atlas Mountains</li> <li>c A marked advance of cold arctic air in North America</li> <li>d <b>A marked advance of cold air in South America</b></li> </ul>
967 id 1527	What weather conditions in the region of the Alps would you expect with Foehn from south?
	<ul style="list-style-type: none"> <li>a Heavy airframe icing conditions on the northern side of the Alps</li> <li>b Heavy clear air turbulence on the southern side of the Alps</li> <li>c Strong north winds on the southern side of the Alps</li> <li>d <b>Clouds, on the southern sides of passes in the Alps</b></li> </ul>
968 id 2471	Under the weather conditions depicted, which of the following statements is likely to apply?
	<ul style="list-style-type: none"> <li>a Severe gradient wind likely over Central Europe.</li> <li>b <b>Thunderstorms may occur in the summer months over Central Europe.</b></li> <li>c Moderate to strong Foehn in the Alps.</li> <li>d Radiation fog is unlikely in Central Europe in the winter.</li> </ul>
969 id 2561	Considering the route indicates from Lisbon to Freetown, the Harmattan is a
	<ul style="list-style-type: none"> <li>a warm southerly dust-bearing wind affecting the coast of North Africa.</li> <li>b SW monsoonal wind causing extensive areas of advection fog along the West African coast south of 15°N.</li> <li>c <b>NE wind affecting north-west Africa during November to April reducing visibility in rising dust.</b></li> <li>d localised depression giving squally winds.</li> </ul>
970 id 3818	The Foehn wind is a
	<ul style="list-style-type: none"> <li>a warm anabatic wind</li> <li>b cold fall wind</li> <li>c <b>warm fall wind</b></li> <li>d cold anabatic wind</li> </ul>

<b>971</b> id 3835	The Chinook is a <b>a warm and dry wind that forms as air descends on the leeward side of the Rocky Mountains</b> b very cold wind with blowing snow c downslope wind that occurs particularly at night as air cools along mountain slopes d warm anabatic wind up the slopes of snowfields or glaciers
<b>972</b> id 3837	A strong, dry and warm katabatic wind, produced by prior enforced ascent of air over hills or mountains is known as a a Bora b Harmattan c Mistral <b>d Foehn</b>
<b>973</b> id 3838	A dry, sand- and dust-laden North Easterly wind that blows in winter over large parts of North West Africa is known as a a Scirocco <b>b Harmattan</b> c Pampero d Khamsin
<b>974</b> id 3849	What is the name of the northerly, cold and strong wind, that sometimes blows over a certain part of Europe? a Bora. b Foehn. <b>c Mistral.</b> d Typhoon.
<b>975</b> id 3850	What are the characteristics of the Bora ? a It is a warm and moist, southwesterly wind experienced in the eastern Mediterranean, that usually carries precipitation. b It is a very cold wind that blows mainly in winter from a northwesterly direction in the Mediterranean <b>c It is a cold and very strong wind that blows mainly in winter from a tableland downwards to the Adriatic</b> d It is a dry and hot southerly wind experienced in the Sahara desert, that often carries dust.
<b>976</b> id 3851	What is the name of the hot, local wind, that blows downwards from mountain chains? In the Alps, for instance, it may exist both as a southerly or northerly wind depending on the weather situation. a <b>Foehn.</b> b Mistral. c Bora. d Scirocco.
<b>977</b> id 4023	Which one of the following local winds is a Foehn wind? a Harmattan b Scirocco <b>c Chinook</b> d Bora

<b>978</b> id 4171	The Bora is a
	<ul style="list-style-type: none"> <li>a cold catabatic wind with gusts associated with a maritime air mass</li> <li>b squally warm catabatic wind which occurs mainly in summer</li> <li><b>c cold catabatic wind with the possibility of violent gusts</b></li> <li>d cold catabatic wind always associated with clouds and heavy showers</li> </ul>
<b>979</b> id 5007	A Foehn wind occurs on the
	<ul style="list-style-type: none"> <li>a leeward side of a mountain range and is caused by the condensation level being lower on the leeward side than on the windward side</li> <li>b windward side of a mountain range and is caused by surface heating</li> <li>c windward side of a mountain range and is caused by surface cooling and reverse air flow</li> <li><b>d leeward side of a mountain range and is caused by significant moisture loss by precipitation from cloud</b></li> </ul>
<b>980</b> id 6732	Which of the following is a cold katabatic wind flowing towards the Adriatic Sea?
	<ul style="list-style-type: none"> <li><b>a Bora</b></li> <li>b Scirocco</li> <li>c Ghibli</li> <li>d Mistral</li> </ul>
<b>981</b> id 6741	What typical weather do you encounter during foehn conditions north of the Alps?
	<ul style="list-style-type: none"> <li>a Good weather</li> <li><b>b Turbulence during south foehn</b></li> <li>c Heavy rain and NS clouds</li> <li>d Icing</li> </ul>
<b>982</b> id 6773	What does this picture depict?
	<ul style="list-style-type: none"> <li>a A westerly wave over Central Europe</li> <li>b A high pressure area over Central Europe</li> <li><b>c South foehn</b></li> <li>d North foehn</li> </ul>
<b>983</b> id 6774	What does this picture depict?
	<ul style="list-style-type: none"> <li>a A westerly wave over Central Europe</li> <li>b A high pressure area over Central Europe</li> <li>c South foehn</li> <li><b>d North foehn</b></li> </ul>
<b>984</b> id 6805	What can be said about this weather situation?
	<ul style="list-style-type: none"> <li>a VFR flights over the Alps can easily be conducted</li> <li><b>b The Alps are in clouds from the south</b></li> <li>c Severe turbulence in the south and icing in the north can be encountered</li> <li>d Very good VFR conditions prevail on the south side of the Alps</li> </ul>

<b>985</b> id 6806	What can be said about this weather situation?
	<ul style="list-style-type: none"> <li>a VFR flights over the Alps can easily be conducted</li> <li><b>b Precipitation can be expected north of the Alps</b></li> <li>c The Alps are in clouds from the south</li> <li>d Marginal VFR conditions prevail on the south side of the Alps</li> </ul>
<b>986</b> id 6810	Define the Chinook:
	<ul style="list-style-type: none"> <li><b>a Warm and dry air descending at the leeward side of the Rocky Mountains</b></li> <li>b Cold and dry air descending at the leeward side of the Appalachian Mountains</li> <li>c A dust and sand laden northeasterly wind in Northwest Africa</li> <li>d Warm and dry air ascending on the West Side of the Rocky Mountains</li> </ul>
<b>987</b> id 6811	Define the Foehn:
	<ul style="list-style-type: none"> <li><b>a Warm and dry air descending at the leeward side of the Alps</b></li> <li>b Cold and dry air descending at the leeward side of the Appalachian Mountains</li> <li>c Strong, cold wind, mostly observed in the Rhone valley, blowing towards Southern France</li> <li>d Warm and dry air ascending on the west side of the Alps</li> </ul>
<b>988</b> id 6812	What is a dry, sand and dust-laden northeasterly wind in the winter in Northwest Africa?
	<ul style="list-style-type: none"> <li><b>a Harmattan</b></li> <li>b Khamsin</li> <li>c Scirocco</li> <li>d Pampero</li> </ul>



## 50.09. FLIGHT HAZARDS

### 50.09.01. Icing

#### 50.09.01.01. Weather conditions ice accretion, topogr.

989 id 1832	<p>You have been flying for some time in dense layered cloud. The outside air temperature is -25°C. Which of the following statements is true?</p> <p>a If you do not have weather radar on board there is no need to worry, as CB is unlikely to form in such cloud</p> <p>b Severe airframe icing is quite likely under these conditions</p> <p>c <b>Severe airframe icing is unlikely under these conditions</b></p> <p>d In a dense layered cloud icing is unlikely also at an outside air temperature of -5°C</p>
990 id 1990	<p>Atmospheric soundings give the following temperature profile : 3000 FT +15°C 6000 FT +8°C 10000 FT +1°C 14000 FT -6°C 18000 FT -14°C 24000 FT -26°C At which of the following flight levels is the risk for aircraft icing, in cloud, greatest?</p> <p>a FL 80</p> <p>b <b>FL 150</b></p> <p>c FL 180</p> <p>d FL 220</p>
991 id 1991	<p>On the approach, the surface temperature is given as -5°C. The freezing level is at 3000 FT/AGL. At 4000 FT/AGL, there is a solid cloud layer from which rain is falling. According to the weather briefing, the clouds are due to an inversion caused by warm air sliding up and over an inclined front. Would you expect icing?</p> <p>a <b>Yes, between ground level and 3000 FT/AGL.</b></p> <p>b Yes, but only between 3000 and 4000 FT/AGL.</p> <p>c No, flights clear of cloud experience no icing.</p> <p>d No, absolutely no icing will occur.</p>
992 id 2255	<p>In which environment is aircraft structural ice most likely to have the highest rate of accretion ?</p> <p>a Cirrus clouds.</p> <p>b <b>Freezing rain.</b></p> <p>c Stratus clouds.</p> <p>d Snow.</p>
993 id 2472	<p>In which of these temperature bands is ice most likely to form on the aircraft's surface?</p> <p>a -20°C to -35°C</p> <p>b +10°C to 0°C</p> <p>c <b>0°C to -10°C</b></p> <p>d -35°C to -50°C</p>
994 id 2473	<p>Which of the following statements is true regarding moderate-to-severe airframe icing?</p> <p>a It may occur in the uppermost levels of a cumulonimbus capillatus formation</p> <p>b It will occur in clear-sky conditions</p> <p>c <b>It is likely to occur in nimbostratus cloud</b></p> <p>d It always occurs in altostratus cloud</p>

<b>995</b> id 2474	Which of the following statements is true regarding moderate-to-severe airframe icing?
	<ul style="list-style-type: none"> <li>a It may occur in the uppermost levels of a cumulonimbus capillatus formation</li> <li>b It always occurs in altostratus cloud</li> <li>c It is unlikely to occur in nimbostratus cloud</li> <li><b>d It will not occur in clear-sky conditions</b></li> </ul>
<b>996</b> id 2475	In which of these cloud types can icing be virtually ruled out?
	<ul style="list-style-type: none"> <li>a CU</li> <li>b SC</li> <li>c NS</li> <li><b>d CI</b></li> </ul>
<b>997</b> id 2476	In which of these cloud types can icing be virtually ruled out?
	<ul style="list-style-type: none"> <li>a NS</li> <li>b AS</li> <li>c SC</li> <li><b>d CS</b></li> </ul>
<b>998</b> id 2477	Which of the following conditions is most likely to cause airframe icing ?
	<ul style="list-style-type: none"> <li>a PE</li> <li>b GR</li> <li>c SHSN</li> <li><b>d +FZRA</b></li> </ul>
<b>999</b> id 2478	Continuous freezing rain is observed at an airfield. Which of the four diagrams is most likely to reflect temperatures above the airfield concerned?
	<ul style="list-style-type: none"> <li>a Diagram b)</li> <li>b Diagram c)</li> <li><b>c Diagram d)</b></li> <li>d Diagram a)</li> </ul>
<b>1000</b> id 2759	In which of the following situations is an aircraft most susceptible to icing ?
	<ul style="list-style-type: none"> <li><b>a Level flight below a rain producing cloud when OAT is below zero degrees C.</b></li> <li>b Flying in dense cirrus clouds.</li> <li>c Level flight in snowfall below a nimbostratus layer.</li> <li>d Flying in heavy drizzle.</li> </ul>
<b>1001</b> id 2760	Which of the following cloud types are most likely to produce light to moderate icing when they are not subject to orographic lifting and consist of supercooled cloud droplets?
	<ul style="list-style-type: none"> <li>a Stratocumulus and cirrostratus</li> <li><b>b Altocumulus and altostratus.</b></li> <li>c Stratus and cumulonimbus</li> <li>d Altostratus and cirrocumulus</li> </ul>

1002 id 2761	<p>A winter day in northern Europe with a thick layer of stratocumulus clouds and temperature close to zero degrees C at ground level, you can expect:</p> <ul style="list-style-type: none"> <li>a Reduced visibility and light icing in clouds</li> <li>b Decreasing visibility due to snowfall below cloud base, but only light icing in clouds.</li> <li><b>c A high probability for icing in clouds. Severe icing in the upper part due to accumulation of large droplets.</b></li> <li>d Turbulence due to a strong inversion, but no icing because clouds consist of ice crystals</li> </ul>
1003 id 2762	<p>Which one of the following statements concerning the formation of aircraft icing is most correct ?</p> <ul style="list-style-type: none"> <li>a Risk for icing increases when cloud temperature decreases well below minus 12 degrees C.</li> <li>b Greatest risk of icing conditions is experienced in cirrus clouds.</li> <li><b>c A cloud consisting of both supercooled cloud droplets and ice crystals produces aircraft icing</b></li> <li>d Probability of icing increases when dry snow starts to fall from a cloud.</li> </ul>
1004 id 3844	<p>Which of the following factors have the greatest effect on the formation of the various types of ice on an aircraft ?</p> <ul style="list-style-type: none"> <li>a Relative humidity inside the cloud</li> <li>b Aircraft speed and size of cloud droplets</li> <li>c Aircraft speed and curvature of the airfoil</li> <li><b>d Cloud temperature and droplet size</b></li> </ul>
1005 id 3996	<p>A vertical temperature profile indicates the possibility of severe icing when the temperature profile</p> <ul style="list-style-type: none"> <li>a coincides with a dry adiabatic lapse rate</li> <li><b>b intersects the 0°C isotherm twice</b></li> <li>c indicates temperatures below -40°C</li> <li>d indicates temperatures above 3°C</li> </ul>
1006 id 4081	<p>Freezing fog exists if fog droplets</p> <ul style="list-style-type: none"> <li>a are frozen</li> <li><b>b are supercooled</b></li> <li>c are freezing very rapidly</li> <li>d freeze when temperature falls below zero</li> </ul>
1007 id 6486	<p>In which meteorological environment is aircraft structural icing most likely to have the highest rate of accumulation ?</p> <ul style="list-style-type: none"> <li>a Cumulonimbus clouds.</li> <li>b High humidity and freezing temperature.</li> <li>c Heavy wet snow.</li> <li><b>d Freezing rain.</b></li> </ul>
1008 id 6495	<p>If you fly into rain which freezes on impact ?</p> <ul style="list-style-type: none"> <li>a You have flown into an area of thunderstorms.</li> <li><b>b Temperatures are above freezing at some higher altitude.</b></li> <li>c You have flown through a cold front.</li> <li>d If you descend, you will fly out of the icing condition.</li> </ul>

<b>1009</b> id 6617	Carburettor icing is unlikely:  a In clouds <b>b At temperatures between -10°C and -30°C</b> c When the relative humidity is 40% d
<b>1010</b> id 6634	Airframe icing:  a Cannot occur outside cloud or precipitation <b>b Can occur outside cloud or precipitation</b> c Can only occur if the Outside Air Temperature (OAT) is below freezing d Occurs only, when the temperature is below -15C
<b>1011</b> id 6753	Observation: Surface temperature -5°C, FZLVL 3000 ft: The solid cloud deck at 4000 ft with RA is an inversion. Do you expect icing?  <b>a Yes, between GND and 3000 ft AGL</b> b No c Yes, at approx. 4000 ft d Yes, between 3000 and approx. 8000 ft
<b>1012</b> id 6790	In which cloud type does moderate to severe airframe icing most probably occur?  <b>a NS</b> b ST c CS d AC
<b>1013</b> id 6818	What can be said about supercooled water droplets?  <b>a They remain liquid at a below-freezing temperature</b> b They don't contribute to clear ice c They only occur in CB clouds d They cool to a below-freezing temperature on impact
<b>1014</b> id 6821	Which cloud type of the following is most prone to airframe icing?  <b>a NS</b> b AS c CC d ST
<b>1015</b> id 6822	In which cloud type of the following does no airframe icing occur?  <b>a CI</b> b NS c CB d AS

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**1016** | What can be said if you encounter +FZRA during flight?

id 6823

- a Icing will most probably occur**
- b There is no significant icing to expect
- c Freezing rain consists of water droplets which supercool to below-freezing temperatures on impact
- d Only light rime ice has to be expected

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**1017** | In which temperature range does clear ice most commonly occur?

id 6924

- a -5°C to -10°C**
- b -10°C to -15°C
- c below -15°C
- d 0°C to -6°C**

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**1018** | In which temperature range does rime ice most commonly occur?

id 6925

- a -5°C to -10°C**
- b -10°C to -15°C**
- c around freezing level
- d 0°C to -6°C

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**1019** | In which temperature range does mixed ice most commonly occur?

id 6926

- a -5°C to -10°C**
- b -10°C to -15°C
- c around freezing level
- d 0°C to -6°C

## 50.09.01.02. Types of ice accretion

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**1020** | Rime ice forms through the freezing onto aircraft surfaces of

id 717

- a water vapour.
- b large supercooled water drops.
- c small supercooled water drops.**
- d snow.

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**1021** | Under which conditions would you expect the heaviest clear ice accretion to occur in a CB?

id 1528

- a Close to the freezing level
- b Between -20°C and -30°C
- c Between -2°C and -15°C**
- d Between -30°C and -40°C

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**1022** | Clear ice forms on an aircraft by the freezing of :

id 1529

- a water vapour
- b large supercooled water drops**
- c small supercooled water drops
- d snow

<b>1023</b> id 3845	Hoar frost is most likely to form when
	<ul style="list-style-type: none"> <li>a flying inside convective clouds.</li> <li><b>b taking off from an airfield with a significant ground inversion.</b></li> <li>c flying inside stratiform clouds.</li> <li>d flying in supercooled drizzle.</li> </ul>
<b>1024</b> id 3847	While descending through a cloud cover at high level, a small amount of a white and rough powderlike contamination is detected along the leading edge of the wing. This contamination is called:
	<ul style="list-style-type: none"> <li>a Clear ice.</li> <li><b>b Rime ice.</b></li> <li>c Mixed ice.</li> <li>d Frost.</li> </ul>
<b>1025</b> id 3848	A small supercooled cloud droplet that collides with an airfoil will most likely
	<ul style="list-style-type: none"> <li><b>a freeze immediately and create rime ice.</b></li> <li>b freeze immediately and create clear ice.</li> <li>c travel back over the wing, creating rime ice.</li> <li>d travel back over the wing, creating clear ice.</li> </ul>
<b>1026</b> id 3990	Glaze or clear ice is formed when supercooled droplets are
	<ul style="list-style-type: none"> <li>a small and at a temperature just below freezing</li> <li><b>b large and at a temperature just below freezing</b></li> <li>c small and freeze rapidly</li> <li>d of any size at temperatures below -35°C.</li> </ul>
<b>1027</b> id 4005	Clear ice is dangerous because it
	<ul style="list-style-type: none"> <li>a spreads out and contains many air particles</li> <li>b is translucent and only forms at the leading edges</li> <li>c is not translucent and forms at the leading edges</li> <li><b>d is heavy and is difficult to remove from the aircraft surfaces</b></li> </ul>
<b>1028</b> id 4116	During the formation of rime ice in flight, water droplets freeze
	<ul style="list-style-type: none"> <li><b>a rapidly and do not spread out</b></li> <li>b slowly and do not spread out</li> <li>c slowly and spread out</li> <li>d rapidly and spread out</li> </ul>
<b>1029</b> id 4118	Hoar frost forms on an aircraft as a result of
	<ul style="list-style-type: none"> <li><b>a water vapour turning directly into ice crystals on the aircraft surface</b></li> <li>b freezing rain striking the aircraft</li> <li>c droplets forming on the aircraft and then freezing</li> <li>d small super-cooled droplets striking the aircraft</li> </ul>

<b>1030</b> id 4123	Clear ice forms as a result of
	<ul style="list-style-type: none"> <li><b>a supercooled water droplets spreading during the freezing process</b></li> <li>b water vapour freezing to the aircraft</li> <li>c ice pellets splattering on the aircraft</li> <li>d supercooled droplets freezing on impact</li> </ul>
<b>1031</b> id 4126	Large supercooled water drops, which freeze on impact on an airplane, form
	<ul style="list-style-type: none"> <li>a rime ice</li> <li><b>b clear ice</b></li> <li>c hoar frost</li> <li>d cloudy ice</li> </ul>
<b>1032</b> id 4127	The type of icing that occurs in dense clouds with large supercooled drops that have a temperature of -5°C is most likely to be
	<ul style="list-style-type: none"> <li><b>a clear ice</b></li> <li>b hoar frost</li> <li>c rime ice</li> <li>d cloudy ice</li> </ul>
<b>1033</b> id 6493	Clear ice is most often experienced, when the outside temperature is:
	<ul style="list-style-type: none"> <li>a 0° to minus 20° C.</li> <li>b Minus 5° to minus 10°.</li> <li>c Minus 5° to plus 5°.</li> <li><b>d 0° to minus 5° C.</b></li> </ul>
<b>1034</b> id 6815	While forming rime ice in flight, water droplets freeze.....
	<ul style="list-style-type: none"> <li><b>a rapidly and do not spread out</b></li> <li>b rapidly and spread out extensively</li> <li>c slowly and do not spread out</li> <li>d on impact, at temperatures near the freezing level</li> </ul>
<b>1035</b> id 6816	While forming clear ice in flight, water droplets freeze.....
	<ul style="list-style-type: none"> <li>a rapidly and do not spread out</li> <li><b>b and spread out extensively</b></li> <li>c slowly and do not spread out</li> <li>d on impact, at temperatures lower than -10°C</li> </ul>
<b>1036</b> id 6817	When is clear ice formed?
	<ul style="list-style-type: none"> <li><b>a When supercooled droplets are large and at a temperature just below freezing</b></li> <li>b When supercooled droplets freeze rapidly and do not spread out</li> <li>c When supercooled droplets are small and at a temperature just below freezing</li> <li>d When supercooled droplets impact the structure and at a temperature well below -10°C</li> </ul>

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**1037** | Which airframe icing is the most dangerous?

id 6819

- a Clear ice**
- b Rime ice
- c Hoar frost
- d Mixed ice

### 50.09.01.03. Hazards of ice accretion, avoidance

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**1038** | How does a pilot react to heavy freezing rain at 2000 FT/AGL, when he is unable to deice, nor land?

id 718

- a He turns back before the aircraft loses manoeuvrability.**
- b He descends to the warm air layer below.
- c He ascends to the cold air layer above.
- d He continues to fly at the same altitude.

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**1039** | The most dangerous form of airframe icing is

id 2259

- a rime ice.
- b hoar frost.
- c dry ice.
- d clear ice.**

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**1040** | At what degree of icing should ICAO's "Change of course and/or altitude desirable" recommendation be followed?

id 2479

- a Light
- b Moderate**
- c Severe
- d Extreme

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**1041** | At what degree of icing should ICAO's "Change course and/or altitude immediately" instruction be followed?

id 2480

- a Light
- b Severe**
- c Moderate
- d Extreme

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**1042** | At what degree of icing can ICAO's "No change of course and altitude necessary" recommendation be followed?

id 2481

- a Moderate
- b Light**
- c Severe
- d Extreme

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**1043** | Two aircraft, one with a sharp wing profile (S), and the other with a thick profile (T), are flying through the same cloud with same true airspeed. The cloud consists of small supercooled droplets. Which of the following statements is most correct concerning ice accretion ?

id 3846

- a Aircraft T experiences more icing than S.
- b Aircraft S experiences more icing than T.**
- c Aircraft S and T experience the same amount of icing
- d Neither of the aircraft accumulate ice due to the small size of droplets.



<b>1044</b> id 6496	Why is frost considered hazardous to flight ?
<ul style="list-style-type: none"> <li>a The increased weight requires a greater takeoff distance.</li> <li>b Frost changes the basic aerodynamic shape of the airfoil.</li> <li>c Frost decreases control effectiveness.</li> <li><b>d Frost causes early airflow separation resulting in a loss of lift.</b></li> </ul>	

<b>1045</b> id 6498	The possibility of significant icing at altitude, should be expected when on ground you observe:
<ul style="list-style-type: none"> <li><b>a Ice grains.</b></li> <li>b Hail.</li> <li>c Snow.</li> <li>d Corn-snow.</li> </ul>	

## 50.09.02. Turbulence

### 50.09.02.01. Effects on flight, avoidance

<b>1046</b> id 1179	How does moderate turbulence affect an aircraft?
<ul style="list-style-type: none"> <li>a Large, abrupt changes in altitude or attitude occur but the aircraft may only be out of control momentarily.</li> <li>b Rapid and somewhat rhythmic bumpiness is experienced without appreciable changes in altitude or attitude.</li> <li><b>c Changes in altitude or attitude occur but the aircraft remains in positive control at all times.</b></li> <li>d Continued flight in this environment will result in structural damage.</li> </ul>	

<b>1047</b> id 1942	A zone of strong convection currents is encountered during a flight. In spite of moderate gust you decide to continue the flight. What are your precautionary measures?
<ul style="list-style-type: none"> <li>a Increase the speed / try to descend below the zone of convective currents.</li> <li>b Increase the speed / try to climb above the zone of convective currents, if aircraft performance parameters allow.</li> <li>c Decrease the speed / try to descend below the zone of convective currents.</li> <li><b>d Decrease the speed / try to climb above the zone of convective currents if aircraft performance parameters allow.</b></li> </ul>	

<b>1048</b> id 1988	What is normally the most effective measure to reduce or avoid CAT effects?
<ul style="list-style-type: none"> <li>a Decrease of speed.</li> <li>b Change of course.</li> <li>c Increase of speed.</li> <li><b>d Change of flight level.</b></li> </ul>	

<b>1049</b> id 2244	An aircraft is approaching a cold front from the warm air mass side at FL 270 and experiencing moderate to severe turbulence. A jet stream is forecast to be at FL 310. The shortest way to get out of this turbulence is by :
<ul style="list-style-type: none"> <li>a Climbing</li> <li><b>b Descending</b></li> <li>c Turn right</li> <li>d Maintain FL 270</li> </ul>	

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- 1050** | A flight is to depart from an airport with runways 09 and 27. Surface wind is 270/05; an inversion is reported at 300 feet with turbulence and wind shear. The wind just above the inversion is 090/30. What is the safest departure procedure ?
- id 3857
- a Depart runway 27 with as steep an ascent as possible.
  - b Depart runway 27 with maximum throttle during the passage through the inversion.
  - c Depart on runway 09 with a tailwind.**
  - d Take-off is not possible under these conditions.
- 

- 1051** | Wake turbulence is created by:
- id 6558
- a Cumulonimbus clouds.
  - b Behind high buildings less than 300 m from the runway.
  - c Wind forces greater than 50 kts.
  - d The wingtips of heavy aircraft during takeoff and landing.**

### 50.09.02.02. CAT: effects on flight

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- 1052** | The degree of clear air turbulence experienced by an aircraft is proportional to the
- id 2260
- a intensity of the solar radiation
  - b height of the aircraft
  - c stability of the air
  - d intensity of vertical and horizontal windshear**
- 

- 1053** | The turbulence which occurs at high flight levels (above FL 250) is mainly of the type Clear Air Turbulence. In what way can moderate to severe clear air turbulence affect an aircraft, the flight and the passengers?
- id 3858
- a The turbulence is a small scale one and can cause damage of worn out type. The manoeuvring of the aircraft will be made more difficult or even impossible. For the passengers the flight will be unpleasant.**
  - b The turbulence is a large scale one (waving) so that the aircraft will be difficult to manoeuvre. The passengers will feel some discomfort.
  - c The turbulence can be resembled with the roughness of a washing-board (small scale) and will not have influence on the aircraft and its solidity, but will make flight a little more difficult. The passengers will seldom notice anything of this turbulence.
  - d The turbulence is wave like which makes the flight unpleasant for the passengers but the manoeuvring will not be affected essentially.
- 

- 1054** | Clear air turbulence (CAT) should be anticipated when:
- id 6553
- a Immediately after the passage of a thunderstorm.
  - b A sharp trough area aloft is present with wind speed considerably higher than that of jetstream winds.
  - c A sharp trough area aloft is present, even though the wind speeds may be considerably less than that of jetstream winds.**
  - d Whenever a high pressure is present close to a thunderstorm area.

## 50.09.03. Windshear

### 50.09.03.01. Weather conditions for vertical windshears

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**1055** | What is the effect of a strong low level inversion ?

id 134

- a It results in good visual conditions.
- b It promotes extensive vertical movement of air.
- c It prevents vertical windshear.
- d It promotes vertical windshear.**

---

**1056** | Low level wind shear is likely to be greatest

id 1836

- a at the condensation level when there is strong surface friction.
- b at the condensation level when there is no night radiation.
- c at the top of a marked surface-based inversion.**
- d at the top of the friction layer.

---

**1057** | Vertical wind shear is

id 4097

- a horizontal variation in the horizontal wind
- b vertical variation in the vertical wind
- c vertical variation in the horizontal wind**
- d horizontal variation in the vertical wind

---

**1058** | What is meant by the expression "windshear"?

id 6534

- a A change of wind- direction and/or speed in horizontal and/or vertical direction.**
- b Whirlwind.
- c The retardation of wind at the friction layer.
- d Interference when two wind streams meet.

### 50.09.03.02. Weather conditions for horiz. windshears

---

**1059** | Low level vertical wind shear can be expected during the night

id 3820

- a and early morning only in summer
- b in unstable atmospheres
- c and early morning only in winter
- d in association with radiation inversions**

---

**1060** | The most dangerous low level wind shears are encountered

id 4096

- a when strong ground inversions are present and near thunderstorms**
- b in areas with layered clouds and wind speeds higher than 35 kts
- c during any period when wind speed is greater than 35 kt and near valleys
- d near valleys and at the windward side of mountains.

---

**1061** | Above and below a low level inversion the wind is likely to

id 4142

- a experience little or no change in speed and direction
- b change in speed but not in direction
- c change in direction but not in speed
- d change significantly in speed and direction**

## 50.09.04. Thunderstorms

### 50.09.04.01. Structure of thunderstorms, squall lines,

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**1062** | Where is a squall line to be expected?

id 1250

- a At the surface position of a warm front.
- b Behind a cold front.
- c In front of a cold front occlusion at higher levels.
- d In front of an active cold front.**

---

**1063** | What are squall lines?

id 1251

- a Unusual intensive cold fronts.
- b Bands of intensive thunderstorms.**
- c The surface weather associated with upper air troughs.
- d The paths of tropical revolving storms.

---

**1064** | What weather condition would you expect at a squall line?

id 1530

- a Strong steady rain
- b Thunderstorms**
- c Fog
- d Strong whirlwinds reaching up to higher levels

---

**1065** | At which altitude, at temperate latitudes, may hail be expected in connection with a CB?

id 1943

- a From the ground up to a maximum of FL 450.**
- b From the ground up to about FL 200.
- c From the ground up to about FL 100.
- d From the base of the clouds up to FL 200.

---

**1066** | A squall line usually is most likely to be encountered

id 4086

- a at an occluded front
- b ahead of a cold front**
- c in an airmass with cold mass properties
- d behind a stationary front

---

**1067** | During the life cycle of a thunderstorm, which stage is characterized predominantly by downdrafts?

id 4099

- a Dissipating stage**
- b Cumulus stage
- c Mature stage
- d Anvil stage

<b>1068</b> id 4100	What feature is normally associated with the cumulus stage of a thunderstorm?
	<ul style="list-style-type: none"> <li>a Frequent lightning</li> <li>b Roll cloud</li> <li><b>c Continuous updraft</b></li> <li>d Rain or hail at the surface</li> </ul>
<b>1069</b> id 4103	A gustfront is
	<ul style="list-style-type: none"> <li>a normally encountered directly below a thunderstorm</li> <li><b>b formed by the cold air outflow from a thunderstorm</b></li> <li>c characterized by heavy lightning</li> <li>d another name for a cold front</li> </ul>
<b>1070</b> id 4111	In which stage of the life cycle of a single thunderstorm cell occur both up- and downdrafts simultaneously?
	<ul style="list-style-type: none"> <li>a Dissipating stage</li> <li>b Cumulus stage</li> <li><b>c Mature stage</b></li> <li>d In all stages</li> </ul>
<b>1071</b> id 6425	Which thunderstorms generally produce the most severe conditions, such as heavy hail and destructive winds ?
	<ul style="list-style-type: none"> <li>a Warm front.</li> <li><b>b Squall line.</b></li> <li>c Air mass.</li> <li>d Cold front.</li> </ul>
<b>1072</b> id 6428	Where can wind shear associated with a thunderstorm be found ? (Choose the most complete answer.)
	<ul style="list-style-type: none"> <li>a In front of the thunderstorm cell (anvil side).</li> <li>b Ahead of the roll clouds or gust front.</li> <li>c In front of the thunderstorm cell and directly under the cell.</li> <li><b>d On all sides of the thunderstorm cell and directly under the cell.</b></li> </ul>
<b>1073</b> id 6489	Between the external appearance of a severe thunderstorm and the turbulence and hail that are contained within it, there is:
	<ul style="list-style-type: none"> <li>a A strong correlation.</li> <li><b>b Apparently no correlation.</b></li> <li>c A moderate correlation.</li> <li>d Both b) and c) are correct.</li> </ul>
<b>1074</b> id 6514	Which type of clouds are associated with "Microburst"?
	<ul style="list-style-type: none"> <li>a Stratus (st).</li> <li>b Altocumulus (ac).</li> <li><b>c Cumulonimbus (cb).</b></li> <li>d Cumulus (cu).</li> </ul>

<b>1075</b> id 6515	In a microburst you may experience strong wind shear, the horizontal extension of this area being:
	<ul style="list-style-type: none"> <li>a 1 - 3 km.</li> <li>b 8 km.</li> <li>c 10 km.</li> <li>d 15 km.</li> </ul>
<b>1076</b> id 6539	Which of the following weather factors will not cause the formation of thunderstorms?
	<ul style="list-style-type: none"> <li>a An occlusion.</li> <li>b A warm front.</li> <li>c A cold front.</li> <li>d <b>Sea fog.</b></li> </ul>
<b>1077</b> id 6740	What is a squall line?
	<ul style="list-style-type: none"> <li>a <b>A band of intense thunderstorms</b></li> <li>b A band of cumulus clouds</li> <li>c Extended areas of nimbostratus clouds</li> <li>d Fog patches ahead of a warm front</li> </ul>
<b>1078</b> id 6781	What is the location of a squall line?
	<ul style="list-style-type: none"> <li>a <b>Ahead of a cold front</b></li> <li>b Ahead of a warm front</li> <li>c Between cold and warm front</li> <li>d On the rear side of a frontal system</li> </ul>
<b>1079</b> id 6824	Which statement is true with regard to a thunderstorm?
	<ul style="list-style-type: none"> <li>a <b>Updrafts in CU clouds, up- and downdrafts as well as downdrafts only in the CB (mature and dissipating stage)</b></li> <li>b Up- and downdrafts can occur in CU and CB clouds</li> <li>c Only downdrafts may be expected in the mature and dissipating stage (CB) of a thunderstorm</li> <li>d Hail must be expected in all stages</li> </ul>
<b>1080</b> id 6846	What is a microburst?
	<ul style="list-style-type: none"> <li>a <b>A downdraught of a CB in the mature stage</b></li> <li>b A downdraught, occurring when a warm front passes by</li> <li>c Severe windshear, caused by a low level jet stream</li> <li>d Up- and downdraughts during a thunderstorm</li> </ul>
<b>1081</b> id 6847	What is the size of a microburst?
	<ul style="list-style-type: none"> <li>a <b>Approximately 4 kms in diameter</b></li> <li>b Approximately 200 metres in diameter</li> <li>c A widespread area of approximately 10 kms</li> <li>d A small, clearly defined area of about 50 metres in diameter</li> </ul>

<b>1082</b>	Describe the microburst:
id 6854	
<b>a</b>	<b>A high speed downburst of air with a generally lower temperature than its surroundings</b>
<b>b</b>	Sinking air of higher temperature than its surroundings
<b>c</b>	Precipitation at the base of a cumulonimbus cloud
<b>d</b>	Horizontal movement of air, generally colder than its surroundings

<b>1083</b>	What is true about thunderstorms?
id 6938	
<b>a</b>	They occur at cold fronts only
<b>b</b>	They only occur, when a cold front occlusion is present
<b>c</b>	<b>They can exceptionally occur at a warm front, when warm air is unstable</b>
<b>d</b>	They occur only in the summertime

## 50.09.04.02. Conditions for and process of development,

<b>1084</b>	In Central Europe when is the greatest likelihood for thunderstorms due to warm updrafts?
id 1247	
<b>a</b>	<b>Mid - afternoon.</b>
<b>b</b>	Around midnight.
<b>c</b>	Early morning.
<b>d</b>	Late morning.

<b>1085</b>	During which stage of thunderstorm development are rotor winds characterized by roll clouds most likely to occur ?
id 1248	
<b>a</b>	Dissipating stage.
<b>b</b>	Cumulus stage.
<b>c</b>	<b>Mature stage.</b>
<b>d</b>	Cumulus stage and mature stage.

<b>1086</b>	What are the meteorological prerequisites, at low level, for thunderstorms formed by lifting processes, over land?
id 1249	
<b>a</b>	Low temperatures, low humidity.
<b>b</b>	High air pressure (> 1013 hPa), high temperatures.
<b>c</b>	<b>High temperatures, high humidity.</b>
<b>d</b>	Subsidence, inversion.

<b>1087</b>	Which of the following meteorological phenomenon indicates upper level instability which may lead to thunderstorm development ?
id 1937	
<b>a</b>	Red cirrus.
<b>b</b>	AC lenticularis.
<b>c</b>	Halo.
<b>d</b>	<b>AC castellanus.</b>

<b>1088</b>	Isolated thunderstorms of a local nature are generally caused by
id 1938	
<b>a</b>	frontal lifting (warm front).
<b>b</b>	<b>thermal triggering.</b>
<b>c</b>	frontal lifting (cold front).
<b>d</b>	frontal occlusion.

<b>1089</b> id 1939	Which thunderstorms move forward the fastest?
	<ul style="list-style-type: none"> <li>a Thunderstorms formed by lifting processes.</li> <li><b>b Frontal thunderstorms.</b></li> <li>c Thermal thunderstorms.</li> <li>d Orographic thunderstorms.</li> </ul>
<b>1090</b> id 2091	The initial phase of a thunderstorm is characterized by
	<ul style="list-style-type: none"> <li>a rain starting at surface</li> <li>b continuous downdraughts</li> <li>c frequent lightning</li> <li><b>d continuous updraughts</b></li> </ul>
<b>1091</b> id 2249	In addition to a lifting action, what are two other conditions necessary for thunderstorm formation ?
	<ul style="list-style-type: none"> <li>a Stable conditions and high moisture content</li> <li><b>b Unstable conditions and high moisture content</b></li> <li>c Stable conditions and low atmospheric pressure</li> <li>d Unstable conditions and low atmospheric pressure</li> </ul>
<b>1092</b> id 2257	Continuous updraughts occur in a thunderstorm during the
	<ul style="list-style-type: none"> <li>a dissipating stage.</li> <li>b mature stage.</li> <li><b>c cumulus stage.</b></li> <li>d period in which precipitation is falling.</li> </ul>
<b>1093</b> id 2258	Thunderstorms reach their greatest intensity during the
	<ul style="list-style-type: none"> <li>a dissipating stage.</li> <li>b cumulus stage.</li> <li><b>c mature stage.</b></li> <li>d period in which precipitation is not falling.</li> </ul>
<b>1094</b> id 4104	What are the requirements for the formation of a thunderstorm?
	<ul style="list-style-type: none"> <li>a Water vapour and high pressure</li> <li><b>b An adequate supply of moisture, conditional instability and a lifting action</b></li> <li>c A stratocumulus cloud with sufficient moisture</li> <li>d A cumulus cloud with sufficient moisture associated with an inversion</li> </ul>
<b>1095</b> id 4105	Which thunderstorms generally develop in the afternoon in summer over land in moderate latitudes?
	<ul style="list-style-type: none"> <li>a Occlusion thunderstorms</li> <li>b Warm front thunderstorms</li> <li>c Cold mass thunderstorms</li> <li><b>d Airmass thunderstorms</b></li> </ul>



<b>1096</b> id 4106	In which of the following areas is the highest frequency of thunderstorms encountered ?
	<ul style="list-style-type: none"> <li><b>a Tropical</b></li> <li>b Polar</li> <li>c Subtropical</li> <li>d Temperate</li> </ul>
<b>1097</b> id 4108	Thunderstorms can occur on a warm front if the
	<ul style="list-style-type: none"> <li><b>a warm air is moist and the environmental lapse rate exceeds the saturated adiabatic lapse rate</b></li> <li>b cold air is moist and the environmental lapse rate is less than the dry adiabatic lapse rate</li> <li>c warm air is moist and the environmental lapse rate is less than the saturated adiabatic lapse rate</li> <li>d cold air is moist and the environmental lapse rate exceeds the saturated adiabatic lapse rate</li> </ul>
<b>1098</b> id 6423	What are the requirements for the formation of a thunderstorm ?
	<ul style="list-style-type: none"> <li>a Sufficient water vapor and a lifting action.</li> <li>b A cumulus cloud with sufficient moisture.</li> <li>c A cumulus cloud with sufficient moisture and an inverted lapse rate.</li> <li><b>d Sufficient moisture, an unstable lapse rate, and a lifting action.</b></li> </ul>
<b>1099</b> id 6485	During the life cycle of a thunderstorm, which stage is characterized predominately by downdrafts ?
	<ul style="list-style-type: none"> <li>a Cumulus.</li> <li><b>b Dissipating.</b></li> <li>c Mature.</li> <li>d Anvil.</li> </ul>
<b>1100</b> id 6494	Which weather phenomenon signals the beginning of the mature stage of a thunderstorm?
	<ul style="list-style-type: none"> <li><b>a The start of rain at the surface.</b></li> <li>b Growth rate cloud is maximum.</li> <li>c Strong turbulence in the cloud.</li> <li>d The appearance of an anvil top.</li> </ul>
<b>1101</b> id 6604	Which weather phenomenon signals the beginning of the mature stage of a thunderstorm:
	<ul style="list-style-type: none"> <li>a The appearance of an anvil top</li> <li>b Growth rate of cloud is maximum</li> <li><b>c The start of precipitation</b></li> <li>d</li> </ul>
<b>1102</b> id 6605	Which of the following are not essential factors for thunderstorm development?
	<ul style="list-style-type: none"> <li><b>a High temperature</b></li> <li>b An unstable atmosphere</li> <li>c A supply of moist air</li> <li>d</li> </ul>

<b>1103</b> id 6737	In which stage do rotor winds and roll clouds occur in a strong thunderstorm?
	<ul style="list-style-type: none"> <li><b>a Mature stage</b></li> <li>b Dissipating stage</li> <li>c Cumulus stage</li> <li>d Rain stage</li> </ul>
<b>1104</b> id 6814	What type of thunderstorms develop in the afternoon in summer over land in moderate latitudes?
	<ul style="list-style-type: none"> <li><b>a Airmass thunderstorms</b></li> <li>b Cold mass thunderstorms</li> <li>c Warm front thunderstorms</li> <li>d Occlusion thunderstorms</li> </ul>
<b>1105</b> id 6843	Which air mass can be related to thunderstorms during summer in Central Europe?
	<ul style="list-style-type: none"> <li><b>a Maritime tropical air</b></li> <li>b Maritime polar air</li> <li>c Continental tropical air</li> <li>d Continental equatorial air</li> </ul>
<b>1106</b> id 6939	What conditions (amongst others) have to be met for the development of CBs and thunderstorms?
	<ul style="list-style-type: none"> <li><b>a Moist air must be present</b></li> <li>b Warm air has to move over a cold surface</li> <li>c There have to be significant pressure differences over a small area</li> <li>d A front has to be present</li> </ul>
<b>50.09.04.03. Thunderstorm avoid., ground/airborne radar</b>	
<b>1107</b> id 4098	The most hazardous type of cloud that may be encountered on a cross country flight is
	<ul style="list-style-type: none"> <li>a cirrus</li> <li>b stratocumulus</li> <li>c cumulus</li> <li><b>d cumulonimbus</b></li> </ul>
<b>1108</b> id 6484	Concerning the radar reflectivity in relation to a thunderstorm, the following is true:
	<ul style="list-style-type: none"> <li>a Reflectivity decreases with severity and frequency of turbulence.</li> <li>b Reflectivity increases with severity and frequency of turbulence.</li> <li>c Reflectivity is a function of the number and size of water droplets in a given unit of volume</li> <li><b>d Both b) and c) are correct.</b></li> </ul>
<b>1109</b> id 6487	In a thunderstorm pilots should be on alert for hail when radar echoes:
	<ul style="list-style-type: none"> <li>a show turbulence.</li> <li><b>b are well defined.</b></li> <li>c are ill-defined.</li> <li>d None of the above is correct.</li> </ul>

---

**1110** | The hazards that thunderstorms pose to aviation include:

id 6644

- a Windshear, severe turbulence, hail
- b Heavy precipitation, lightning, severe icing
- c **All of the above**
- d

#### 50.09.04.04. Development and effect of downbursts

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**1111** | What is the approximate maximum diameter of a microburst ?

id 1531

- a 20 km
- b 400 m
- c **4 km**
- d 50 km

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**1112** | What is a microburst?

id 1944

- a A small low pressure system where the wind circulates with very high speeds.
- b A concentrated downdraft with high speeds and a higher temperature than the surrounding air.
- c An extremely strong wind gust in a tropical revolving storm.
- d **A concentrated downdraft with high speeds and a lower temperature than the surrounding air.**

---

**1113** | How long does a typical microburst last?

id 1951

- a About 30 minutes.
- b Less than 1 minute.
- c 1 to 2 hours.
- d **1 to 5 minutes.**

---

**1114** | A microburst phenomenon can arise in the

id 2551

- a **downdraught of a cumulonimbus at the mature stage.**
- b updraught of a cumulonimbus at the mature stage.
- c downdraught of a cumulonimbus at the formation stage.
- d updraught of a cumulonimbus at the growth stage.

---

**1115** | A microburst

id 4107

- a is always associated with thunderstorms
- b has a life time of more than 30 minutes
- c **has a diameter up to 4 km**
- d occurs only in tropical areas

---

**1116** | Which of the following statements describes a microburst ?

id 4112

- a **A high speed downburst of air with a generally lower temperature than its surroundings**
- b A high speed downdraft of air with a higher temperature than its surroundings
- c An extremely strong wind gust associated with a tropical revolving storm
- d A small low pressure system where the wind circulates at high speed

---

**1117** | The diameter and the life time of a typical microburst are in the order of

id 4114

- a 8 km and 5-15 minutes
- b 4 km and 30-40 minutes
- c 4 km and 1-5 minutes**
- d 12 km and 5-10 minutes

## 50.09.04.05. Development of lightning discharge

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**1118** | Aircraft struck by lightning may sometimes get considerable damage and at least temporarily the manoeuvring of the aircraft will be made more difficult. Which one of the following statements is correct?

id 3859

- a An aircraft has in the atmosphere the same qualities as a "Faradays cage", which means that struck of lightning seldom occurs. But if it happens, the result will be an occasional engine failure. The crew may get a shock.
- b An aircraft made by metal has a certain capacity to attract a lightning, but the lightning will follow the surface and therefore no damage will be caused.
- c Aircraft made by composite material may get severe damage, the crew may be blinded and temporarily lose the hearing.**
- d Aircraft made by composite material can't conduct a lightning and will therefore very seldom be struck.

## 50.09.05. Tornadoes

### 50.09.05.01. Occurrence

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**1119** | At what time of the year are tornadoes most likely to occur in North America?

id 1246

- a Spring, summer.**
- b Summer, autumn.
- c Autumn, winter.
- d Winter.

---

**1120** | With which type of cloud are tornadoes normally associated ?

id 4109

- a Cumulonimbus**
- b Cumulus
- c Stratus
- d Nimbostratus

---

**1121** | The diameter of a typical tornado is

id 4110

- a only a few metres
- b 100 to 150 metres**
- c about 2 to 6 km
- d in the order of 10 km

## 50.09.06. Low and high level inversions

### 50.09.06.01. Influence on aircraft performance

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**1122** | A wide body takes off on a clear night in Dhahran, Saudi Arabia. Shortly after take  
id 4166 off the aircraft's rate of climb drops to zero. This can be due to

- a a very strong temperature inversion**
- b sand/dust in the engines
- c very pronounced downdrafts
- d low relative humidity

## 50.09.08. Hazards in mountainous areas

### 50.09.08.01. Influence of terrain -clouds & precipitation,

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**1123** | Which of the following phenomena are formed when a moist, stable layer of air is  
id 4069 forced to rise against a mountain range ?

- a Inversions
- b Stratified clouds**
- c Showers and thunderstorms
- d Areas of severe turbulence

### 50.09.08.02. Vert. movements, mountainwave, windshear,

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**1124** | You are flying with an outside air temperature of -12°C and a TAS of 250 kt at FL  
id 1244 150 through 8 octas NS. What type and degree of icing is most probable?

- a In clouds pushed up against the mountains, moderate to severe rime ice.
- b In clouds pushed up against the mountains, moderate to severe mixed ice.**
- c Over flat terrain, away from fronts, moderate to severe mixed ice.
- d Over flat terrain, moderate hoar frost.

---

**1125** | You intend to carry out a VFR flight over the Alps, on a hot summer day, when the  
id 1245 weather is unstable. What is the best time of day to conduct this flight?

- a Morning.**
- b Mid-day.
- c Afternoon.
- d Early evening.

---

**1126** | CAP clouds are one three groups of mountain wave clouds.  
id 6437

- a They appear to be harmless.
- b Downdrafts as great as 5000 feet per minute can be expected on the leeward side.
- c They cool adiabatically and therefore evaporate.
- d Both a) and b) are correct.**

---

**1127** | Mention 3 types of weather phenomena associated with mountain waves:  
id 6516

- a Rotor , cap and lenticular clouds.**
- b Fog, lenticular and medium height clouds.
- c Low clouds, downdrafts and thunderstorms.
- d Turbulence, advection and convection clouds.

---

**1128** | Should a mountain wave situation occur without creating mountain wave clouds,  
id 6517 this would indicate:

- a Stable air mass.
- b Too strong winds.
- c **Too dry air.**
- d Too strong turbulence.

---

**1129** | The meteorological conditions required to form mountain waves are among others:  
id 6556

- a The height of the mountain must be at least 3000 ft.
- b The air must be unstable.
- c Wind velocity on top of the mountain must be 50 kts or more.
- d **A wind profile whereby the wind velocity increases with increasing altitude and a strong, steady wind flow at higher levels often extending to the tropopause.**

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**1130** | What is likely when mountain waves are observed?  
id 6557

- a **Strong wind and turbulence in the mountains.**
- b Unstable air.
- c Rain on the leeward side of the mountain.
- d Convection clouds.

---

**1131** | A mountain range runs north-south, and a strong wind is blowing from the west.  
id 6624 What meteorological phenomena is most likely and where will it be at its most dangerous?

- a Fog in the valleys
- b Mountain wave activity to the west of the mountains
- c **Mountain wave activity to the east of the mountains**
- d

---

**1132** | Which would be the best time for nice weather conditions when flying in the Alps  
id 6776 during summertime?

- a **In the morning**
- b In the afternoon
- c In the evening
- d Anytime during the day

## 50.09.09. Visibility reducing phenomena

### 50.09.09.01. Reduction of visibility caused by mist,

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**1133** | In general, the meteorological visibility during rainfall compared to during drizzle is  
id 1532

- a less
- b the same
- c **greater**
- d in rain - below 1 km, in drizzle - more than 2 km

<b>1134</b> id 3995	In unstable air, surface visibility is most likely to be restricted by
	<ul style="list-style-type: none"> <li>a low stratus</li> <li>b haze</li> <li>c drizzle</li> <li><b>d showers of rain or snow</b></li> </ul>
<b>1135</b> id 3999	In the vicinity of industrial areas, smoke is most likely to affect surface visibility when
	<ul style="list-style-type: none"> <li>a the surface wind is strong and gusty</li> <li><b>b there is a low level inversion</b></li> <li>c cumulus clouds have developed in the afternoon</li> <li>d a rapid moving cold front has just passed the area</li> </ul>
<b>1136</b> id 4080	Visibility is reduced by haze when
	<ul style="list-style-type: none"> <li>a a cold front just passed</li> <li>b a light drizzle falls</li> <li><b>c dust particles are trapped below an inversion</b></li> <li>d small waterdroplets are present</li> </ul>
<b>1137</b> id 4141	Below a low level inversion visibility is often
	<ul style="list-style-type: none"> <li>a moderate or poor due to heavy snow showers.</li> <li>b very good at night</li> <li>c very good in the early morning</li> <li><b>d moderate or poor because there is no vertical exchange</b></li> </ul>
<b>1138</b> id 4168	Flight visibility from the cockpit during approach in a tropical downpour can decrease to minimal
	<ul style="list-style-type: none"> <li>a about 500 metres</li> <li>b about 200 metres</li> <li><b>c tens of metres</b></li> <li>d about 1000 metres</li> </ul>
<b>50.09.09.02. Reduction of visibility</b>	
<b>1139</b> id 6614	You are flying in a layer of haze, late on a winter afternoon. Which of the following statements is true?
	<ul style="list-style-type: none"> <li><b>a Flight visibility into sun will be worse</b></li> <li>b Flight visibility "down sun" will be worse</li> <li>c The position of the sun will not effect flight visibility</li> <li>d</li> </ul>
<b>1140</b> id 6749	Compare meteorological visibility:
	<ul style="list-style-type: none"> <li><b>a Visibility is greater in RA than in DZ</b></li> <li>b Visibility is lower in RA than in DZ</li> <li>c Visibility is equal in RA and in DZ</li> <li>d Visibility is greater in FG than in DZ</li> </ul>

- 
- 1141** | The flight visibility from the cockpit of an aircraft in a tropical downpour can  
id 6777 decrease to minimal....
- a** about 500 metres
  - b** about 1000 metres
  - c** about 200 metres
  - d tens of metres**



# 50.10. METEOROLOGICAL INFORMATION

## 50.10.01. Observation

### 50.10.01.01. On the ground

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**1142** | What is the relationship between meteorological visibility (met.vis.) and RVR in  
id 1242 | homogeneous fog?

- a The met. vis. generally is the same as the RVR.
- b The met. vis. generally is greater than the RVR.
- c The met. vis. is generally less than the RVR.**
- d There is no specific relationship between the two.

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**1143** | The wind indicator for a weather observation receives the measured value from an  
id 1243 | anemometer. Where is this instrument placed?

- a On the roof of the weather station.
- b 1 m above the runway.
- c Close to the station about 2 m above the ground.
- d On a mast 8-10 m above the ground.**

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**1144** | What is the meaning of the abbreviation "BKN"?  
id 1255

- a 6 - 8 octas.
- b 3 - 4 octas.
- c 5 - 7 octas.**
- d 8 octas.

---

**1145** | When is the RVR reported at most airports?  
id 1256

- a When the RVR decreases below 2000 m.
- b When the meteorological visibility decreases below 800 m.
- c When the RVR decreases below 800 m.
- d When the meteorological visibility decreases below 1500 m.**

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**1146** | When will the surface wind in a METAR record a gust factor ?  
id 2482

- a When gusts are at least 10 knots above the mean wind speed**
- b When gusts are at least 15 knots above the mean wind speed
- c With gusts of at least 25 knots
- d With gusts of at least 35 knots

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**1147** | While approaching your target aerodrome you receive the following message: RVR  
id 2552 | runway 23: 400m This information indicates the

- a portion of runway which a pilot on the threshold of any of the runways would see, with runway 23 in service.
- b meteorological visibility on runway 23.
- c length of runway which a pilot in an aircraft on the ground would see, on the threshold of runway 23.**
- d minimum visibility at this aerodrome, with runway 23 being the one in service.

<b>1148</b>	Runway Visual Range (RVR) is
id 4082	
a	measured with ceilometers alongside the runway
b	reported when meteorological visibility is less than 2000m
c	reported in TAF and METAR
d	<b>usually better than meteorological visibility</b>
<b>1149</b>	The wind direction in a METAR is measured relative to
id 4155	
a	the 0-meridian
b	magnetic north
c	<b>true north</b>
d	grid north
<b>1150</b>	The cloud base, reported in the METAR, is the height above
id 4159	
a	the highest terrain within a radius of 8 km from the observation station
b	mean sea level
c	the pressure altitude of the observation station at the time of observation
d	<b>airfield level</b>
<b>1151</b>	What does a Transmissiometer measure ?
id 6411	
a	Wind speed.
b	Cloud base.
c	<b>Visibility.</b>
d	Breaking action.
<b>1152</b>	What does RVR stand for ?
id 6412	
a	Reduced visibility range.
b	Reduced vertical range.
c	<b>Runway visual range.</b>
d	Radio VHF and range.
<b>1153</b>	RVR is measured when meteorological visibility falls below:
id 6413	
a	500 m
b	<b>1500 m.</b>
c	2000 m.
d	2500 m.
<b>1154</b>	When last 10 minutes wind velocity deviates more than 10 kts from mean value
id 6426	during the same period of time, this will be indicated as:
a	<b>A gust</b>
b	A squall
c	Tempo 10 kts
d	Geostrophic wind.

<b>1155</b> id 6477	The horizontal visibility given for VFR flight planning by a MET Office is:
	<ul style="list-style-type: none"> <li>a The average flight visibility for the planned flight.</li> <li>b Meteorological visibility at an average altitude of 500 meters.</li> <li><b>c Meteorological visibility on ground.</b></li> <li>d Vertical visibility.</li> </ul>
<b>1156</b> id 6478	The information about visibility to be used planning a VFR flight is:
	<ul style="list-style-type: none"> <li>a Observed horizontal visibility on ground.</li> <li><b>b Forecasted horizontal visibility on ground.</b></li> <li>c Observed vertical visibility.</li> <li>d RVR</li> </ul>
<b>1157</b> id 6554	Among the ten groups of clouds, the following two are mentioned specifically in MET-reports and forecasts intended for aviation:
	<ul style="list-style-type: none"> <li>a Altocumulus and stratus.</li> <li>b Cirrostratus and cumulonimbus.</li> <li><b>c Cumulonimbus and towering cumulus.</b></li> <li>d Cumulonimbus and nimbostratus.</li> </ul>
<b>1158</b> id 6782	Under what conditions is RVR measured?
	<ul style="list-style-type: none"> <li><b>a When the meteorological visibility is lower than 1500 metres</b></li> <li>b When the meteorological visibility is lower than 1000 metres</li> <li>c When fog is present</li> <li>d When the technical equipment for the measurement at an airport is available</li> </ul>

## 50.10.01.02. Upper air observations

<b>1159</b> id 1303	Of the four radio soundings, select the one that indicates ground fog:
	<ul style="list-style-type: none"> <li>a c)</li> <li><b>b b)</b></li> <li>c a)</li> <li>d d)</li> </ul>
<b>1160</b> id 2483	Of the four radio soundings, select the one that indicates low stratus:
	<ul style="list-style-type: none"> <li>a 4</li> <li><b>b 3</b></li> <li>c 1</li> <li>d 2</li> </ul>
<b>1161</b> id 6415	The average visibility as seen from the cockpit in flight is called:
	<ul style="list-style-type: none"> <li>a Cockpit visibility.</li> <li><b>b Flight visibility.</b></li> <li>c RVR.</li> <li>d Slant visibility.</li> </ul>

### 50.10.01.03. Satellite observations, interpretation

**1162** | What are the images of satellites provided daily by the Weather Service used for?  
id 2484

- a To locate fronts in areas with few observation stations**
- b To measure wind currents on the ground
- c To help provide 14-day forecasts
- d To locate precipitation zones

### 50.10.01.04. Weather radar observations

**1163** | Which of the following causes echoes on meteorological radar screens?  
id 2485

- a Hail**
- b Water vapour
- c Fog
- d Any cloud

**1164** | An airborne weather radar installation makes it possible to detect the location of  
id 2554

- a cumulonimbus, but provided that cloud of this type is accompanied by falls of hail
- b all clouds
- c zones of precipitation, particularly liquid-state precipitation, and also their intensity**
- d stratocumulus and its vertical development

## 50.10.02. Weather charts

### 50.10.02.01. Charts of significant weather, tropopause, maximum

**1165** | In which meteorological forecast chart is information about CAT regions found?  
id 1259

- a 300 hPa chart.
- b 24 hour surface forecast.
- c 500 hPa chart.
- d Significant Weather Chart.**

**1166** | On which of the following aviation weather charts can a pilot most easily find a  
id 1260 jetstream?

- a Upper air chart.
- b Wind / temperature chart.
- c Surface chart.
- d Significant weather chart.**

**1167** | Which weather chart gives information about icing and the height of the freezing  
id 1533 level ?

- a Surface chart
- b 500 hPa chart
- c 700 hPa chart
- d Significant weather chart**

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**1168** | What information is given on a Significant Weather Chart?

id 4095

- a The significant weather in a period 3 hours before and 3 hours after the time given on the chart
- b The significant weather that is observed at the time given on the chart
- c The significant weather forecast for the time given on the chart**
- d The significant weather forecast for a period 6 hours after the time given on the chart

### 50.10.02.03. Upper air charts

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**1169** | Which constant pressure altitude chart is standard for a 4781 FT pressure level (FL50)?

id 1158

- a 500 hPa.
- b 700 hPa.
- c 850 hPa.**
- d 300 hPa.

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**1170** | How is the direction and speed of upper winds described in forecasts ?

id 1257

- a The direction is relative to magnetic north and the speed is in miles per hour.
- b The direction is relative to magnetic north and the speed is in knots.
- c The direction is relative to true north and the speed is in knots.**
- d The direction is relative to true north and the speed is in miles per hour.

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**1171** | What positions are connected with contour lines on the weather chart?

id 1258

- a Positions with the same air density.
- b Positions with the same thickness between two constant pressure levels.
- c Positions with the same height in a chart of constant pressure.**
- d Positions with the same wind velocity.

---

**1172** | Which constant pressure altitude chart is standard for a 9882 FT pressure level (FL 100) ?

id 2486

- a 850 hPa
- b 700 hPa**
- c 500 hPa
- d 300 hPa

---

**1173** | Which constant pressure altitude chart is standard for a 18289 FT pressure level (FL 180) ?

id 2487

- a 200 hPa
- b 300 hPa
- c 500 hPa**
- d 700 hPa

---

**1174** | Which constant pressure altitude chart is standard for a 30065 FT pressure level (FL 300)?

id 2488

- a 500 hPa
- b 200 hPa
- c 700 hPa
- d 300 hPa**

<b>1175</b> id 2489	Which constant pressure altitude chart is standard for a 38662 FT pressure level (FL 390) ?
	<ul style="list-style-type: none"> <li>a 700 hPa</li> <li>b 300 hPa</li> <li>c 500 hPa</li> <li><b>d 200 hPa</b></li> </ul>
<b>1176</b> id 2490	If you are planning a flight at FL 170, which of these upper wind and temperature charts would be nearest your flight level ?
	<ul style="list-style-type: none"> <li>a 300 hPa</li> <li><b>b 500 hPa</b></li> <li>c 850 hPa</li> <li>d 700 hPa</li> </ul>
<b>1177</b> id 2491	If you are planning a flight at FL 290, which of these upper wind and temperature charts would be nearest your flight level ?
	<ul style="list-style-type: none"> <li>a 850 hPa</li> <li>b 500 hPa</li> <li>c 700 hPa</li> <li><b>d 300 hPa</b></li> </ul>
<b>1178</b> id 2492	When planning a flight at FL 60, which upper wind and temperature chart would be nearest your flight level ?
	<ul style="list-style-type: none"> <li>a 500 hPa</li> <li>b 700 hPa</li> <li><b>c 850 hPa</b></li> <li>d 300 hPa</li> </ul>
<b>1179</b> id 2493	When planning a flight at FL 110, which upper wind and temperature chart would be nearest your flight level ?
	<ul style="list-style-type: none"> <li>a 300 hPa</li> <li>b 850 hPa</li> <li><b>c 700 hPa</b></li> <li>d 500 hPa</li> </ul>
<b>1180</b> id 2555	The upper wind and temperature chart of 250 hPa corresponds, in a standard atmosphere, to about
	<ul style="list-style-type: none"> <li><b>a 34 000 FT</b></li> <li>b 39 000 FT</li> <li>c 30 000 FT</li> <li>d 32 000 FT</li> </ul>
<b>1181</b> id 4146	An isohypse of the 500 hPa pressure surface is labelled with the number 552. This means that for all points on the isohypse the
	<ul style="list-style-type: none"> <li><b>a topography is 552 decameters above MSL</b></li> <li>b pressure is 552 hPa</li> <li>c topography is 552 meters above MSL</li> <li>d pressure altimeter will overread by 552 FT</li> </ul>

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**1182** | What units of measurement are used in forecasts for winds aloft?

id 6418

- a Magnetic direction and knots.
- b Magnetic direction and MPH.
- c True direction and knots.**
- d True direction and MPH.

#### 50.10.02.04. Symbols and signs on analysed and prognostic chart

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**1183** | How are well separated CB clouds described on the Significant Weather Chart?

id 1300

- a ISOL CB.
- b EMBD CB.
- c FREQ CB.
- d OCNL CB.**

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**1184** | The cold front is indicated with a number at position:

id 1302

- a 1
- b 2**
- c 3
- d 4

---

**1185** | What does the symbol indicate on a significant weather chart?

id 1304

- a The center of a tropopause "high", where the tropopause is at FL 400.**
- b The center of a high pressure area at 400 hPa.
- c The upper limit of significant weather at FL 400.
- d The lower limit of the tropopause.

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**1186** | Which of the following symbols represents a squall line?

id 1534

- a Symbol c)
- b Symbol b)
- c Symbol a)**
- d Symbol d)

---

**1187** | Which of the following symbols represents a tropical revolving storm?

id 1535

- a Symbol c)
- b Symbol b)
- c Symbol a)**
- d Symbol d)

---

**1188** | The front labelled "Z" is a:

id 1594

- a Cold front
- b Warm front**
- c Warm front occlusion
- d Cold front occlusion

<b>1189</b> id 2494	A trough is indicated by letter:  a B b <b>A</b> c C d D
<b>1190</b> id 2495	The warm sector is indicated by letter:  a A b B c D d <b>C</b>
<b>1191</b> id 2496	Which of the following best describes Zone A?  a Depression b Col c Ridge of high pressure d <b>Trough of low pressure</b>
<b>1192</b> id 2497	Which of the following best describes Zone B?  a <b>Col</b> b Ridge of high pressure c Depression d Trough of low pressure
<b>1193</b> id 2498	Which of the following best describes Zone C?  a <b>Ridge of high pressure</b> b Col c Trough of low pressure d Depression
<b>1194</b> id 2499	Which of the following best describes Zone D?  a Anticyclone b Ridge of high pressure c <b>Depression</b> d Trough of low pressure
<b>1195</b> id 2500	According to ICAO, which symbol indicates severe icing ?  a <b>Symbol a)</b> b Symbol b) c Symbol c) d Symbol d)



<b>1196</b> id 2501	According to ICAO, which symbol indicates a tropical revolving storm?
<b>a Symbol d)</b> b Symbol c) c Symbol b) d Symbol a)	
<b>1197</b> id 2502	According to ICAO, which symbol indicates danger to an aircraft in flight?
<b>a Symbol b)</b> b Symbol d) c Symbol a) d Symbol c)	
<b>1198</b> id 2503	According to ICAO, which symbol indicates danger to an aircraft in flight?
<b>a Symbols c) and d)</b> b Symbol d) c Symbols a) and b) d Symbol c)	

### 50.10.03. Information for flight planning

#### 50.10.03.01. Aeronautical codes: METAR, TAF, SPECI, SIGMET, SNOW

<b>1199</b> id 982	Refer to the TAF for Amsterdam airport. FCNL31 281500 EHAM 281601 14010KT 6000 -RA SCT025 BECMG 1618 12015G25KT SCT008 BKN013 TEMPO 1823 3000 RA BKN005 OVC010 BECMG 2301 25020KT 8000 NSW BKN020 = Flight from Bordeaux to Amsterdam, ETA 2100 UTC. What lowest cloud base is forecast for arrival at Amsterdam?
<b>a 500 m</b> b 250 FT <b>c 500 FT</b> d 800 FT	
<b>1200</b> id 1263	In the TAF for Dehli, during the summer, for the time of your landing you note: TEMPO TS. What is the maximum time this deterioration in weather can last in anyone instance ?
a 120 minutes. <b>b 60 minutes.</b> c 10 minutes. d 20 minutes.	

<b>1201</b> id 1287	<p>In the weather briefing room during the pre-flight phase of a passenger flight from Zurich to Rome, you examine the following weather reports of pressing importance at the time: EINN SHANNON 2808 sigmet 2 valid 0800/1100 loc sev turb fcst einn fir blw fl 050 south of 53n wkn = LIMM MILANO 2809 sigmet 2 valid 0900/1500 mod sev cat btn fl 250 and fl 430 fcst limm fir strn nc = EGL</p> <p>a You show no further interest in these reports, since they do not concern the route to be flown.</p> <p><b>b Because of the expected turbulence you select a flight level below FL 250.</b></p> <p>c Owing to these reports and taking into account the presence of heavy thunderstorms at planned FL 310 you select a higher flight level (FL 370).</p> <p>d You cancel the flight since the expected dangerous weather conditions along the route would demand too much of the passengers.</p>
<b>1202</b> id 1536	<p>What is a trend forecast?</p> <p>a An aerodrome forecast valid for 9 hours</p> <p><b>b A landing forecast appended to METAR/SPECI, valid for 2 hours</b></p> <p>c A route forecast valid for 24 hours</p> <p>d A routine report</p>
<b>1203</b> id 1537	<p>What does the expression "Broken (BKN)" mean?</p> <p><b>a 5-7 Eights of the sky is cloud covered</b></p> <p>b 3-4 Eights of the sky is cloud covered</p> <p>c 3-5 Eights of the sky is cloud covered</p> <p>d Nil significant cloud cover</p>
<b>1204</b> id 1538	<p>What does the abbreviation "nosig" mean?</p> <p><b>a No significant changes</b></p> <p>b No report received</p> <p>c No weather related problems</p> <p>d Not signed by the meteorologist</p>
<b>1205</b> id 1539	<p>In which weather report would you expect to find information about icing conditions on the runway?</p> <p>a TAF</p> <p>b SIGMET</p> <p>c GAFOR</p> <p><b>d METAR</b></p>
<b>1206</b> id 1540	<p>In which of the following 1850 UTC METAR reports, is the probability of fog formation, in the coming night, the highest?</p> <p>a VRB02KT 2500 SCT120 14/M08 Q1035 NOSIG =</p> <p>b 22004KT 6000 -RA SCT012 OVC030 17/14 Q1009 NOSIG =</p> <p><b>c VRB01KT 8000 SCT250 11/10 Q1028 BECMG 3000 =</b></p> <p>d 00000KT 9999 SCT300 21/01 Q1032 NOSIG =</p>

<b>1207</b> id 1541	Which of the following weather reports could be, in accordance with the regulations, abbreviated to "CAVOK"? (MSA above ground: LSZB 10000 FT, LSZH 8000 FT, LSGG 12000 FT, LFSB 6000 FT)
	<p>a LSZH 26024G52KT 9999 BKN060 17/14 Q1012 RETS TEMPO 5000 TSRA =</p> <p><b>b LSGG 22003KT 9999 SCT120 BKN280 09/08 Q1026 BECMG 5000 =</b></p> <p>c LSZB 30004KT 9999 SCT090 10/09 Q1006 NOSIG =</p> <p>d LFSB 00000KT 9000 SCT080 22/15 Q1022 NOSIG =</p>
<b>1208</b> id 1542	Which of the following weather reports could be, in accordance with the regulations, abbreviated to "CAVOK"? (MSA above ground : LSZB 10000 FT, LSZH 8000 FT, LSGG 12000 FT, LFSB 6000 FT)
	<p>a LFSB 24008KT 9999 SCT050 18/11 Q1017 RERA NOSIG =</p> <p><b>b LSZB 28012KT 9999 OVC100 16/12 Q1012 BECMG 5000 =</b></p> <p>c LSZH VRB02KT 9000 BKN080 21/14 Q1022 NOSIG =</p> <p>d LSGG 22006KT 9999 BKN090 17/15 Q1008 RERA NOSIG =</p>
<b>1209</b> id 1543	Within a short interval, several flight crews report that they have experienced strong clear air turbulence in a certain airspace. What is the consequence of these reports?
	<p>a The competent aviation weather office will issue a SPECI</p> <p>b The airspace in question, will be temporarily closed</p> <p><b>c The competent aviation weather office will issue a SIGMET</b></p> <p>d The competent aviation weather office will issue a storm warning</p>
<b>1210</b> id 1596	Refer to the TAF for Bordeaux airport. FCFR31 281400 LFBG 1524 26015KT 9999 SHRA BKN020 TEMPO 1620 26020G30KT 8000 +SHRA BKN015CB PROB30 TSRA = Flight Lisbon to Bordeaux, ETA 1800 UTC. What type of precipitation is forecast on the approach to Bordeaux ?
	<p>a Light drizzle and fog</p> <p>b Continuous moderate rain</p> <p><b>c Heavy rain showers</b></p> <p>d Moderate snow showers</p>
<b>1211</b> id 1597	Refer to the TAF for Bordeaux airport. FCFR31 281400 LFBG 1524 26015KT 9999 SHRA BKN020 TEMPO 1620 26020G30KT 8000 +SHRA BKN015CB PROB30 TSRA = Flight Lisbon to Bordeaux, ETA 1800 UTC. At ETA Bordeaux what is the lowest quoted visibility forecast ?
	<p>a 10 or more km</p> <p>b 8 NM</p> <p>c 10 NM</p> <p><b>d 8 km</b></p>
<b>1212</b> id 1603	Refer to the TAF for Amsterdam airport. FCNL31 281500 EHAM 281601 14010KT 6000 -RA SCT025 BECMG 1618 12015G25KT SCT008 BKN013 TEMPO 1823 3000 RA BKN005 OVC010 BECMG 2301 25020KT 8000 NSW BKN020 = Flight from Bordeaux to Amsterdam, ETA 2100 UTC. At ETA Amsterdam what surface wind is forecast ?
	<p><b>a 120° / 15 kt gusts 25 kt</b></p> <p>b 140° / 10 kt</p> <p>c 300° / 15 kt maximum wind 25 kt</p> <p>d 250° / 20 kt</p>

1213 id 1604	Refer to the TAF for Amsterdam airport. FCNL31 281500 EHAM 281601 14010KT 6000 -RA SCT025 BECMG 1618 12015G25KT SCT008 BKN013 TEMPO 1823 3000 RA BKN005 OVC010 BECMG 2301 25020KT 8000 NSW BKN020 = Flight from Bordeaux to Amsterdam, ETA 2100 UTC. What is the minimum visibility forecast for ETA Amsterdam ?
	<ul style="list-style-type: none"> <li>a 5 km</li> <li><b>b 3 km</b></li> <li>c 5 NM</li> <li>d 6 km</li> </ul>
1214 id 1925	Does the following report make sense? LSZH VRB02KT 5000 MIFG 02/02 Q1015 NOSIG
	<ul style="list-style-type: none"> <li>a The report is nonsense, because it is impossible to observe a meteorological visibility of 5 km if shallow fog is reported.</li> <li>b The report would never be seen, because shallow fog is not reported when the meteorological visibility is more than 2 km.</li> <li><b>c The report is possible, because shallow fog is defined as a thin layer of fog below eye level.</b></li> <li>d The report is not possible, because, with a temperature of 2°C and a dew point of 2°C there must be uniform fog.</li> </ul>
1215 id 1926	You receive the following METAR : LSGG 0750Z 00000KT 0300 R05/0700N FG VV001 M02/M02 Q1014 NOSIG = What will be the RVR at 0900 UTC?
	<ul style="list-style-type: none"> <li>a 300 m.</li> <li><b>b The RVR is unknown, because the "NOSIG" does not refer to RVR.</b></li> <li>c 700 m.</li> <li>d 900 m.</li> </ul>
1216 id 1927	Which of the four answers is a correct interpretation of data from the following METAR ? 16003KT 0400 R14/P1500 R16/1000N FZFG VV003 M02/M02 Q1026 BECMG 2000 =
	<ul style="list-style-type: none"> <li>a Meteorological visibility 1000 m, RVR 400 m, freezing level at 300 m, variable winds, temperature 2°C.</li> <li>b RVR for runway 16 1000 m, meteorological visibility increasing in the next 2 hours to 2000 m, vertical visibility 300 m, temperature -2°C.</li> <li>c RVR for runway 14 1500 m, meteorological visibility 400 m, QNH 1026 hPa, wind 160° at 3 kt.</li> <li><b>d Meteorological visibility 400m, RVR for runway 16 1000 m, dew point -2°C, freezing fog.</b></li> </ul>
1217 id 1934	Refer to the following TAF extract: BECMG 1821 2000 BKN004 PROB30 BECMG 2124 0500 FG VV001 What visibility is forecast for 2400 UTC?
	<ul style="list-style-type: none"> <li>a Between 500 m and 2000 m.</li> <li>b 2000 m.</li> <li><b>c 500 m.</b></li> <li>d Between 0 m and 1000 m.</li> </ul>
1218 id 1935	Refer to the following TAF extract: BECMG 1821 2000 BKN004 PROB30 BECMG 2124 0500 FG VV001 What does the abbreviation "VV001" mean?
	<ul style="list-style-type: none"> <li>a RVR greater than 100 m.</li> <li>b RVR less than 100 m.</li> <li><b>c Vertical visibility 100 FT.</b></li> <li>d Vertical visibility 100 m.</li> </ul>

<b>1219</b> id 1940	What does the term METAR signify?
	<ul style="list-style-type: none"> <li>a A METAR is a flight forecast, issued by the meteorological station several times daily.</li> <li>b A METAR is a warning of dangerous meteorological conditions within a FIR.</li> <li><b>c A METAR signifies the actual weather report at an aerodrome and is generally issued in half-hourly intervals.</b></li> <li>d A METAR is a landing forecast added to the actual weather report as a brief prognostic report.</li> </ul>
<b>1220</b> id 1941	How long from the time of observation is a TREND in a METAR valid?
	<ul style="list-style-type: none"> <li>a 9 hours.</li> <li><b>b 2 hours.</b></li> <li>c 1 hour.</li> <li>d 30 minutes.</li> </ul>
<b>1221</b> id 1945	What is a SPECI?
	<ul style="list-style-type: none"> <li>a A routine aerodrome weather report issued every 3 hours.</li> <li><b>b A selected special aerodrome weather report, issued when a significant change of the weather conditions have been observed.</b></li> <li>c A warning of meteorological dangers at an aerodrome, issued only when required.</li> <li>d An aerodrome forecast issued every 9 hours.</li> </ul>
<b>1222</b> id 1946	Appended to a METAR you get the following runway report: 01650428 What must you consider when making performance calculations?
	<ul style="list-style-type: none"> <li>a Aquaplaning conditions.</li> <li>b The braking action will be medium to good.</li> <li>c The runway will be wet.</li> <li><b>d The friction coefficient is 0.28.</b></li> </ul>
<b>1223</b> id 1947	Refer to the following TAF extract: BECMG 1821 2000 BKN004 PROB30 BECMG 2124 0500 FG VV001 What does the "BECMG" data indicate for the 18 to 21 hour time frame?
	<ul style="list-style-type: none"> <li><b>a The new conditions are achieved between 1800 and 2100 UTC</b></li> <li>b A quick change to new conditions between 1800 UTC and 1900 UTC.</li> <li>c Many short term changes in the original weather.</li> <li>d Many long term changes in the original weather.</li> </ul>
<b>1224</b> id 1948	Refer to the following TAF extract: BECMG 1821 2000 BKN004 PROB30 BECMG 2124 0500 FG VV001 What does the abbreviation "BKN004" mean?
	<ul style="list-style-type: none"> <li>a 1 - 4 oktas, ceiling 400 m.</li> <li>b 1 - 4 oktas, ceiling 400 FT.</li> <li>c 4 - 8 oktas, ceiling 400 m.</li> <li><b>d 5 - 7 oktas, ceiling 400 FT.</b></li> </ul>
<b>1225</b> id 1949	Refer to the following TAF extract; BECMG 1821 2000 BKN004 PROB30 BECMG 2124 0500 FG VV001 What does the abbreviation "PROB30" mean?
	<ul style="list-style-type: none"> <li><b>a Probability of 30%.</b></li> <li>b Conditions will last for at least 30 minutes.</li> <li>c The cloud ceiling should lift to 3000 FT.</li> <li>d Change expected in less than 30 minutes.</li> </ul>

1226 id 2251	Refer to TAF below. EGBB 261812 28015G25KT 9999 SCT025 TEMPO 1822 29018G35KT 5000 SHRASN BKN010CB PROB30 TEMPO 1821 1500 TSGR BKN008CB BECMG 2124 26010 KT From the TAF above you can assume that visibility at 2055Z in Birmingham (EGBB) will be :  a not less than 1,5 km but could be in excess of 10 km. b a maximum 5 km. c a minimum of 1,5 km and a maximum of 5 km. d more than 10 km
1227 id 2433	What is the wind speed given in a METAR report based on?  a The average speed of the previous 30 minutes b The average speed of the previous 10 minutes c The strongest gust in the previous hour d The actual speed at the time of recording
1228 id 2504	What does the term SIGMET signify?  a A SIGMET is a warning of dangerous meteorological conditions b A SIGMET is a flight forecast, issued by the meteorological station several times daily c A SIGMET is a brief landing forecast added to the actual weather report d A SIGMET is an actual weather report at an aerodrome and is generally issued at half-hourly intervals
1229 id 2505	What does the term TREND signify?  a It is a flight forecast, issued by the meteorological station several times daily b It is the actual weather report at an aerodrome and is generally issued at half-hourly intervals c It is a warning of dangerous meteorological conditions d It is a brief landing forecast added to the actual weather report
1230 id 2506	Which of the following phenomena should be described as precipitation at the time they are observed?  a FZFG b BCFG c SN d HZ
1231 id 2507	Which of the following phenomena should be described as precipitation at the time they are observed?  a +SHSN b VA c BR d MIFG
1232 id 2508	Which of the following phenomena should be described as precipitation at the time they are observed?  a TS b SA c DZ d SQ

<b>1233</b> id 2509	Which of the following meteorological phenomena can rapidly change the braking action of a runway?
	<ul style="list-style-type: none"> <li>a HZ</li> <li>b MIFG</li> <li>c FG</li> <li>d <b>+FZRA</b></li> </ul>
<b>1234</b> id 2510	Which of the following phenomena can produce a risk of aquaplaning?
	<ul style="list-style-type: none"> <li>a SA</li> <li>b FG</li> <li>c BCFG</li> <li>d <b>+RA</b></li> </ul>
<b>1235</b> id 2511	Which of these four METAR reports suggests that rain is most likely in the next few hours?
	<ul style="list-style-type: none"> <li>a <b>23015KT 8000 BKN030 OVC070 17/14 Q1009 BECMG 4000 =</b></li> <li>b 34004KT 9999 SCT040 SCT100 m05/m08 Q1014 NOSIG =</li> <li>c 16002KT 0100 FG SCT300 06/06 Q1022 BECMG 1000 =</li> <li>d 05016G33KT 8000 OVC015 08/06 Q1028 NOSIG =</li> </ul>
<b>1236</b> id 2512	Which of these four METAR reports suggests that a thunderstorm is likely in the next few hours?
	<ul style="list-style-type: none"> <li>a <b>1350Z 21005KT 9999 SCT040CB SCT100 26/18 Q1016 TEMPO 24018G30 TS =</b></li> <li>b 1350Z 16004KT 8000 SCT110 OVC220 02/m02 Q1008 NOSIG =</li> <li>c 1350Z 34003KT 0800 SN VV002 m02/m04 Q1014 NOSIG =</li> <li>d 1350Z 04012KT 3000 OVC012 04/03 Q1022 BECMG 5000 =</li> </ul>
<b>1237</b> id 2513	In which of the following METAR reports, is the probability of fog formation in the coming night the highest?
	<ul style="list-style-type: none"> <li>a <b>1850Z 15003KT 6000 SCT120 05/04 Q1032 BECMG 1600 =</b></li> <li>b 1850Z 21003KT 8000 SCT250 12/m08 Q1028 NOSIG =</li> <li>c 1850Z 06018G30KT 5000 OVC010 04/01 Q1024 NOSIG =</li> <li>d 1850Z 25010KT 4000 RA BKN012 OVC030 12/10 Q1006 TEMPO 1500 =</li> </ul>
<b>1238</b> id 2514	Look at this TAF for Zurich Airport TAF LSZH 211322 22018G35KT 9999 SCT012 BKN030 BECMG 1315 25025G45KT TEMPO 1720 4000 +SHRA BKN025TCU BECMG 2022 25015KT T1815Z T1618Z = Which of these statements best describes the weather most likely to be experienced at 1500 UTC?
	<ul style="list-style-type: none"> <li>a Meteorological visibility 10 kilometres or more, main cloudbase 1200 feet, gusts up to 45 knots.</li> <li>b Meteorological visibility 4000 metres, gusts up to 25 knots, temperature 18°C.</li> <li>c <b>Meteorological visibility 10 kilometres or more, main cloudbase 3000 feet, wind 250°, temperature 18°C.</b></li> <li>d Severe rainshowers, meteorological visibility 4000 metres, temperature 15°C, gusts up to 35 knots.</li> </ul>

1239 id 2515	Refer to the TAF for Zurich Airport TAF LSZH 250716 00000KT 0100 FG VV001 BECMG 0810 0800 VV002 BECMG 1012 23005KT 2500 BKN005 TEMPO 1316 6000 SCT007 = Which of these statements best describes the weather that can be expected at 1200 UTC?
	<p>a Meteorological visibility 6 kilometres, cloudbase 500 feet, windspeed 5 knots</p> <p>b Meteorological visibility 800 metres, wind from 230°, cloudbase 500 feet</p> <p>c Meteorological visibility 800 metres, vertical visibility 200 feet, calm</p> <p><b>d Meteorological visibility 2,5 kilometres, cloudbase 500 feet, windspeed 5 knots</b></p>
1240 id 2516	Which of the following weather reports could be, in accordance with the regulations, abbreviated to "CAVOK"?
	<p>a 29010KT 9999 SCT045TCU 16/12 Q1015 RESHRA NOSIG =</p> <p>b 24009KT 6000 RA SCT010 OVC030 12/11 Q1007 TEMPO 4000 =</p> <p><b>c 15003KT 9999 BKN100 17/11 Q1024 NOSIG =</b></p> <p>d 04012G26KT 9999 BKN030 11/07 Q1024 NOSIG =</p>
1241 id 2517	Which of the following weather reports could be, in accordance with the regulations, abbreviated to "CAVOK"?
	<p>a 34004KT 7000 MIFG SCT260 09/08 Q1029 BECMG 1600 =</p> <p><b>b 27019G37KT 9999 BKN050 18/14 Q1016 NOSIG =</b></p> <p>c 00000KT 0100 FG VV001 11/11 Q1025 BECMG 0500 =</p> <p>d 26012KT 8000 SHRA BKN025 16/12 Q1018 NOSIG =</p>
1242 id 2518	Which of the following statements is an interpretation of the METAR ? 25020G38KT 1200 +TSGR BKN006 BKN015CB 23/18 Q1016 BECMG NSW =
	<p><b>a Gusts of 38 knots, thunderstorm with heavy hail, dew point 18°C</b></p> <p>b Mean wind speed 20-38 knots, meteorological visibility 1200 metres, temperature 23°C</p> <p>c Broken, cloudbase 600 feet and 1500 feet, temperature 18°C</p> <p>d Wind 250°, thunderstorm with moderate hail, QNH 1016 hPa</p>
1243 id 2519	Which of the following statements is an interpretation of the METAR ? 00000KT 0200 R14/0800U R16/P1500U FZFG VV001 m03/m03 Q1022 BECMG 0800 =
	<p>a Meteorological visibility for runway 14 800 metres, fog with hoar frost, RVR for runway 16 more than 1500 metres</p> <p>b Meteorological visibility 200 metres, RVR for runway 16 1500 metres, temperature -3°C, vertical visibility 100 metres</p> <p>c Meteorological visibility 200 feet, RVR for runway 16 more than 1500 metres, vertical visibility 100 feet, fog with hoar frost</p> <p><b>d RVR for runway 14 800 metres, vertical visibility 100 feet, calm, meteorological visibility improving to 800 metres in the next 2 hours</b></p>
1244 id 2520	Which of the following statements is an interpretation of the SIGMET ? LSAW SWITZERLAND 0307 SIGMET 2 VALID 030700/031100 LSSW mod to sev cat fcst north of alps btn fl 260 and fl 380 / stnr / intsf =
	<p>a Zone of moderate-to-severe turbulence moving towards the area north of the Alps. Intensity increasing. Pilots advised to cross this area above FL 260</p> <p><b>b Moderate-to-severe clear air turbulence to be expected north of the Alps. Intensity increasing. Danger zone between FL 260 and FL 380</b></p> <p>c Severe turbulence observed below FL 260 north of the Alps. Pilots advised to cross this area above FL 380</p> <p>d Moderate to strong clear air turbulence of constant intensity to be expected north of the Alps</p>



<b>1245</b> id 2521	Which of the following statements is an interpretation of the SIGMET ? SIGMET VALID 121420/121820 embd ts obs and fcst in w part of athina FIR / moving east / intensity = a Athens Airport is closed due to thunderstorms. The thunderstorm zone should be east of Athens by 1820 UTC b Thunderstorms have formed in the eastern part of the Athens FIR and are slowly moving west c <b>Thunderstorms must be expected in the western part of the Athens FIR. The thunderstorm zone is moving east. Intensity is constant</b> d The thunderstorms in the Athens FIR are increasing in intensity, but are stationary above the western part of the Athens FIR
<b>1246</b> id 2543	Refer to the following TAF for Zurich. LSZH 261019 20018G30KT 9999 -RA SCT050 BKN080 TEMPO 23012KT 6000 -DZ BKN015 BKN030 BECMG 1518 23020G35KT 4000 RA OVC010= The lowest visibility forecast at ETA Zurich 1430 UTC is: a 6 NM. b <b>6 km.</b> c 4 km. d 10 km.
<b>1247</b> id 2544	Refer to the following TAF for Zurich. LSZH 061019 20018G30KT 9999 -RA SCT050 BKN080 TEMPO 23012KT 6000 -DZ BKN015 BKN030 BECMG 1518 23020G35KT 4000 RA OVC010= The lowest cloud base forecast at ETA Zurich (1200 UTC) is: a 1000 FT. b <b>1500 FT.</b> c 1500 m. d 5000 FT.
<b>1248</b> id 2545	The following weather report EDDM 241322 VRB03KT 1500 HZ OVC004 BECMG 1517 00000KT 0500 FG VV002 TEMPO 2022 0400 FG VV001 is a : a METAR. b 24 hour TAF. c SPECI. d <b>9 hour TAF.</b>
<b>1249</b> id 2546	In METAR messages, the pressure group represents the a QNH rounded up to the nearest hPa. b QFE rounded to the nearest hPa. c <b>QNH rounded down to the nearest hPa.</b> d QFE rounded down to the nearest hPa.
<b>1250</b> id 2553	What is the meaning of the abbreviation "SCT" ? a 1 - 2 oktas b <b>3 - 4 oktas</b> c 5 - 7 oktas d 1 - 4 oktas

<b>1251</b> id 4102	Which of the statements is true concerning squall lines ?
	<ul style="list-style-type: none"> <li>a Severe squall lines always move from northwest to southeast</li> <li>b Severe squall lines only occur in the tropics</li> <li>c For severe squall lines a TAF is issued</li> <li><b>d For severe squall lines a SIGMET is issued</b></li> </ul>
<b>1252</b> id 4150	The validity of a TAF is
	<ul style="list-style-type: none"> <li>a between 6 and 9 hours</li> <li>b 2 hours</li> <li><b>c stated in the TAF</b></li> <li>d 9 hours from the time of issue</li> </ul>
<b>1253</b> id 4152	If CAVOK is reported then
	<ul style="list-style-type: none"> <li><b>a no low drifting snow is present</b></li> <li>b no clouds are present</li> <li>c low level windshear has not been reported</li> <li>d any CB's have a base above 5000 FT</li> </ul>
<b>1254</b> id 4153	Runway visual range can be reported in
	<ul style="list-style-type: none"> <li>a a TAF</li> <li><b>b a METAR</b></li> <li>c a SIGMET</li> <li>d both a TAF and a METAR</li> </ul>
<b>1255</b> id 4154	SIGMET information is issued as a warning for significant weather to
	<ul style="list-style-type: none"> <li>a heavy aircraft only</li> <li>b light aircraft only</li> <li>c VFR operations only</li> <li><b>d all aircraft</b></li> </ul>
<b>1256</b> id 4156	A SPECI is
	<ul style="list-style-type: none"> <li>a an aviation routine weather report</li> <li><b>b an aviation selected special weather report</b></li> <li>c a warning for special weather phenomena</li> <li>d a forecast for special weather phenomena</li> </ul>
<b>1257</b> id 4157	On the European continent METARs of main airports are compiled and distributed with intervals of
	<ul style="list-style-type: none"> <li>a 2 hours</li> <li>b 1 hour</li> <li><b>c 0.5 hour</b></li> <li>d 3 hours</li> </ul>

<b>1258</b> id 4158	The RVR, as reported in a METAR, is always the
	<ul style="list-style-type: none"> <li>a highest value of the A-, B- and C-position</li> <li>b average value of the A-, B- and C-position</li> <li><b>c value representative of the touchdown zone</b></li> <li>d lowest value of the A-, B- and C-position</li> </ul>
<b>1259</b> id 4167	Given the following METAR: EDDM 250850Z 33005KT 2000 R26R/P1500N R26L/1500N BR SCT002 OVC003 05/05 Q1025 NOSIG
	<ul style="list-style-type: none"> <li><b>a Visibility is reduced by water droplets</b></li> <li>b There is a distinct change in RVR observed</li> <li>c Runway 26R and runway 26L have the same RVR</li> <li>d RVR on runway 26R is increasing</li> </ul>
<b>1260</b> id 5557	At a weather station, at 0600 UTC, the air temperature and dew point are respectively: T = - 0,5°C, Td = -1,5°C. In the METAR message transmitted by this station, the "temperature group" will be:
	<ul style="list-style-type: none"> <li><b>a M00/M01</b></li> <li>b M01/M02</li> <li>c 00/M01</li> <li>d M01/M01</li> </ul>
<b>1261</b> id 6444	The TAF validity in terms of time is usually:
	<ul style="list-style-type: none"> <li>a 3 hours</li> <li>b 6 hours</li> <li><b>c 9 hours</b></li> <li>d 12 hours</li> </ul>
<b>1262</b> id 6450	A "SIGMET" is:
	<ul style="list-style-type: none"> <li>a A significant weather chart</li> <li>b A special "METAR"</li> <li><b>c A message about observed or forecasted weather phenomena of special importance to aviation</b></li> <li>d The same as a "TAF"-forecast</li> </ul>
<b>1263</b> id 6469	Which of the following is a landing forecast ?
	<ul style="list-style-type: none"> <li>a METAR.</li> <li>b TAF.</li> <li>c SPECI.</li> <li><b>d METAR with TREND.</b></li> </ul>
<b>1264</b> id 6500	SIGMETs are issued as a warning of weather conditions hazardous:
	<ul style="list-style-type: none"> <li>a Particularly to light aircraft</li> <li><b>b To all aircraft</b></li> <li>c Only to light aircraft operations</li> <li>d Particularly to heavy aircraft</li> </ul>

<b>1265</b> id 6501	The function of a TAF is to be a/an :
	<ul style="list-style-type: none"> <li>a Area forecast.</li> <li>b Local forecast.</li> <li><b>c Forecast for an airfield.</b></li> <li>d Wind forecast.</li> </ul>
<b>1266</b> id 6541	A METAR from an airfield reporting visibility 8 km. Added to the report is a "BECMG 4000". From this you will expect the visibility to
	<ul style="list-style-type: none"> <li>a Decrease to 4 km within 1 hour.</li> <li>b Improve from 4 km to 8 km in the next 2 hours.</li> <li>c Be variable between 4 and 8 km.</li> <li><b>d Decrease to 4 km within the next 2 hours.</b></li> </ul>
<b>1267</b> id 6567	Cloud bases in TAFs and METARs are given in:
	<ul style="list-style-type: none"> <li>a Heights above mean sea level</li> <li>b Heights above the 1013 hPa pressure level</li> <li><b>c Heights above airfield elevation</b></li> <li>d</li> </ul>
<b>1268</b> id 6591	The abbreviation BKN means:
	<ul style="list-style-type: none"> <li>a 1-4 oktas cloud cover</li> <li>b 3-7 oktas cloud cover</li> <li><b>c 5-7 oktas cloud cover</b></li> <li>d</li> </ul>
<b>1269</b> id 6592	The abbreviation SCT means:
	<ul style="list-style-type: none"> <li><b>a 2-4 oktas cloud cover</b></li> <li>b 3-7 oktas cloud cover</li> <li>c 5-7 oktas cloud cover</li> <li>d</li> </ul>
<b>1270</b> id 6593	The abbreviation FEW means:
	<ul style="list-style-type: none"> <li>a 2-4 oktas cloud cover</li> <li><b>b 1-2 oktas cloud cover</b></li> <li>c 5-7 oktas cloud cover</li> <li>d</li> </ul>

1271 id 6609	EHAM 120600Z 02025KT 3000 RA BKN005 OVC015 11/10 Q1012= Which of the following is the correct decode for the Amsterdam METAR?
	<ul style="list-style-type: none"> <li>a <b>Observation at 0600Z, wind 020° at 25 knots, visibility 3000 metres in rain, clouds: broken ST with base 500ft AGL and 8 oktas NS with base 1500ft AGL, temperature +11°C, dew point +10°C, QNH 1012 hPa</b></li> <li>b Observation at 0600 UTC, wind 020° at 25 knots, visibility 3000m, rain, broken ST with base 500ft AGL and 8 oktas NS with base 1500ft MSL, temperature +11°C, dew point +10°C, QNH 1012 hPa</li> <li>c Period valid between 0600 UTC and 0000 UTC, wind 020° at 25 knots, visibility 3000 metres in rain, clouds: broken ST with base 500ft AGL and 8 oktas NS with base 1500ft AGL, temperature +11°C, dew point +10°C, QNH 1012 hPa</li> <li>d</li> </ul>
1272 id 6613	If weather conditions are reported as CAVOK, which of the following could not be present:
	<ul style="list-style-type: none"> <li>a Winds 25 KT, gusting to 40 KT</li> <li>b <b>1 okta of CB at 9000ft</b></li> <li>c Overcast cloud at 5100ft</li> <li>d</li> </ul>
1273 id 6615	A SIGMET message is:
	<ul style="list-style-type: none"> <li>a A routine weather report to an aircraft in flight</li> <li>b A routine weather report from an aircraft in flight</li> <li>c <b>A warning of reported or forecast hazardous in-flight conditions</b></li> <li>d</li> </ul>
1274 id 6646	It is October, and an aerea of high pressure has been established for several days. Which of the following is most likely to represent the TAF for an inland airport?
	<ul style="list-style-type: none"> <li>a 0716 04025KT 7000 BKN013 OVC090=</li> <li>b <b>0716 05002KT 0800 FG OVC001 TEMPO 0709 0200 VV/// BECMG 0811 3000 BR OVC005 TEMPO 1116 6000 SCT008=</b></li> <li>c 0716 30005KT 9999 SCT035 PROB30 TEMPO 0710 5000 +TSRA BKN050CB=</li> <li>d</li> </ul>
1275 id 6789	What conditions have to be met amongst others, that the weather is reported to be CAVOK?
	<ul style="list-style-type: none"> <li>a <b>No low drifting snow is present</b></li> <li>b Wind of less than 25KT</li> <li>c No clouds are present below 8000 ft AGL</li> <li>d No clouds are present below 5000 ft AMSL</li> </ul>
1276 id 6802	A pilot observes thunderstorm activity and severe icing along his flight path. Therefore, he files a pilot report. What does it lead to?
	<ul style="list-style-type: none"> <li>a <b>It leads to a SIGMET</b></li> <li>b It leads to a METAR</li> <li>c An amended General Aviation Forecast will be issued</li> <li>d No action will be taken</li> </ul>

<b>1277</b> id 6882	A SIGMET....
	<p><b>a is a warning of meteorological hazards in the FIR for all aircraft</b></p> <p>b is a route forecast, issued several times during the day by the Met Offices</p> <p>c is added as a short-term forecast to the actual weather report of an airport</p> <p>d reports the actual weather of an airport every 30 minutes</p>
<b>1278</b> id 6883	<p>TAF LSZH 1322 22018G35KT 9999 SCT012 BKN030 BECMG 1315 25025G45KT BECMG 1820 4000 RA BKN025 BECMG 2022 25015KT T1815Z T1618Z = Which statement is true at 15 UTC?</p> <p>a met. vis. 4000 metres, gusts of 25 KT, temperature 18°C</p> <p><b>b met. vis. 10 km or more, ceiling 3000 ft, wind from 250 degrees, temperature 18°C</b></p> <p>c met. vis. 10 km or more, ceiling 1200 ft, gusts of 45 KT</p> <p>d strong rain showers, met. vis. 4000 metres, temperature 15°C, gusts of 35 KT</p>
<b>1279</b> id 6884	<p>Refer to the TAF below: What are the weather conditions you have to expect at 1200UTC on Zurich airport? TAF LSZH 0716 00000KT 0100FG VV001 BECMG 0810 0800 VV002 BECMG 1012 23005KT 2500 BKN005 TEMPO 1316 6000 SCT007 =</p> <p>a met. vis. 800 metres, vertical vis. 200ft, calm</p> <p>b met. vis. 6 km, ceiling 500 ft, wind from 230 degrees</p> <p><b>c met. vis. 2,5 km, ceiling 500 ft, wind speed 5 KT</b></p> <p>d met. vis. 800 m, wind direction 230 degrees, ceiling 500 ft</p>
<b>1280</b> id 6927	<p>For your flight from Zurich to Rome you consult, amongst other information, the following SIGMET: SIGMET VALID121420/121820 MOD TO SEV CAT OBS AND FCST S OF ALPS BTN FL 260 AND FL 380 / STNR / INTSF =</p> <p><b>a You select a flight level below FL 260 due to turbulence</b></p> <p>b You select a flight level between FL 260 and FL 380 due to turbulence</p> <p>c You delay your departure until 18.20 LT to avoid the icing conditions between FL 260 and FL 380</p> <p>d You disregard this SIGMET, because it does not affect your flight</p>
<b>50.10.03.02. Meteorological broadcasts for aviation: VOLMET, AT</b>	
<b>1281</b> id 2522	<p>Compare the following TAF and VOLMET reports for Nice: TAF 240716 VRB02KT CAVOK = 0920Z 13012KT 8000 SCT040CB BKN100 20/18 Q1015 TEMPO TS = What can be concluded from the differences between the two reports ?</p> <p>a That the weather in Nice after 0920 is also likely to be as predicted in the TAF</p> <p>b That the weather conditions at 0920 were actually predicted in the TAF</p> <p><b>c That the weather at Nice is clearly more volatile than the TAF could have predicted earlier in the morning</b></p> <p>d That the VOLMET speaker has got his locations mixed up, because there is no way the latest VOLMET report could be so different from the TAF</p>
<b>1282</b> id 2556	<p>Marseille Information gives you the following meteorological information for Ajaccio and Calvi for 16:00 UTC : Ajaccio: wind 360°/2 kt, visibility 2000 m, rain, BKN stratocumulus at 1000 FT, OVC altostratus at 8000 FT, QNH 1023 hPa. Calvi: wind 040°/2 kt, visibility 3000 m, mist, FEW stratus at 500 FT, SCT stratocumulus at 2000 FT, OVC altostratus at 9000 FT, QNH 1023 hPa. The</p> <p>a 1000 FT at Ajaccio and 2000 FT at Calvi</p> <p>b 1000 FT at Ajaccio and 500 FT at Calvi</p> <p>c 8000 FT at Ajaccio and 9000 FT at Calvi</p> <p><b>d 1000 FT at Ajaccio and 9000 FT at Calvi</b></p>

<b>1283</b> id 4151	ATIS information contains
	<ul style="list-style-type: none"> <li>a operational information and if necessary meteorological information</li> <li>b only meteorological information</li> <li><b>c meteorological and operational information</b></li> <li>d only operational information</li> </ul>
<b>50.10.03.03. Content and use of pre-flight meteorological docum</b>	
<b>1284</b> id 977	Which airport, at 1200 UTC, has the lowest probability of precipitation?
	<ul style="list-style-type: none"> <li>a ESSA</li> <li><b>b LSZH</b></li> <li>c ENFB</li> <li>d EFHK</li> </ul>
<b>1285</b> id 978	Over Paris at what height would you expect to find the tropopause according to the map?
	<ul style="list-style-type: none"> <li><b>a approx.30000 FT</b></li> <li>b approx. 36000 FT</li> <li>c approx. 15000 FT</li> <li>d approx. 28000 FT</li> </ul>
<b>1286</b> id 979	What is the optimum flight level between Rome and Paris according to the significant weather chart?
	<ul style="list-style-type: none"> <li>a FL 340</li> <li><b>b FL 200</b></li> <li>c FL 160</li> <li>d FL 180</li> </ul>
<b>1287</b> id 980	Flight Zurich to Rome, ETD 1600 UTC, ETA 1800 UTC. At what flight level would you first expect to encounter clear air turbulence on the climb out from Zurich?
	<ul style="list-style-type: none"> <li>a FL 140</li> <li>b FL 160</li> <li>c FL 320</li> <li><b>d FL 220</b></li> </ul>
<b>1288</b> id 981	What is the approximate height of the tropopause between Munich and Helsinki?
	<ul style="list-style-type: none"> <li><b>a FL 340</b></li> <li>b FL 280</li> <li>c FL 300</li> <li>d FL 390</li> </ul>
<b>1289</b> id 983	You are flying from Munich to Amsterdam. Which of the following flight levels would you choose in order to avoid turbulence and icing?
	<ul style="list-style-type: none"> <li>a FL 140</li> <li>b FL 320</li> <li>c FL 180</li> <li><b>d FL 260</b></li> </ul>

<b>1290</b> id 984	In what height range and at what intensity could you encounter turbulence in CAT area n°2?
	<ul style="list-style-type: none"> <li><b>a From FL 220 to FL 400, moderate</b></li> <li>b From FL 220 to FL 350, moderate</li> <li>c From below FL 220 to FL 400, moderate, occasionally severe</li> <li>d From FL 240 to FL 370, light, occasionally moderate</li> </ul>
<b>1291</b> id 985	At what flight level is the jet stream core that is situated over Germany?
	<ul style="list-style-type: none"> <li>a FL 280</li> <li><b>b FL 330</b></li> <li>c FL 360</li> <li>d FL 300</li> </ul>
<b>1292</b> id 1261	How may the correct wind speed be found, for a level, which is between two upper air chart levels? (e.g. wind at FL 250, when the 500 hPa and the 300 hPa chart are available).
	<ul style="list-style-type: none"> <li><b>a By interpolation of the wind information available from the two charts, while also considering the maximum wind information found on the Significant Weather Chart.</b></li> <li>b By simple interpolation of wind information available from the two charts.</li> <li>c By reading wind direction and speed from the next higher chart.</li> <li>d By reading wind direction and speed from the 300 hPa chart.</li> </ul>
<b>1293</b> id 1262	Why are indications about the height of the tropopause not essential for flight documentation in the tropics?
	<ul style="list-style-type: none"> <li>a The meteorological services are unable to provide such a chart.</li> <li><b>b The tropopause is generally well above the flight level actually flown.</b></li> <li>c The temperatures of the tropical tropopause are always very cold and therefore not important.</li> <li>d Tropopause informations are of no value.</li> </ul>
<b>1294</b> id 1276	If you are flying from Zurich to Shannon at FL 340, where will your cruising altitude be?
	<ul style="list-style-type: none"> <li>a Constantly in the troposphere</li> <li><b>b Constantly in the stratosphere</b></li> <li>c First in the troposphere and later in the stratosphere</li> <li>d In the stratosphere for part of time</li> </ul>
<b>1295</b> id 1277	Which of these statements is true?
	<ul style="list-style-type: none"> <li>a Turbulence is likely to be encountered at FL 410 over Madrid</li> <li>b Freezing level above Madrid is higher than FL 120</li> <li>c The front to the north of London is moving south</li> <li><b>d Scattered thunderstorms can be expected over France</b></li> </ul>
<b>1296</b> id 1278	On which of these routes would you not need to worry about icing at FL 220?
	<ul style="list-style-type: none"> <li>a Zurich - Hamburg</li> <li>b Zurich - Madrid</li> <li><b>c Hamburg - Stockholm</b></li> <li>d Shannon - Zurich</li> </ul>



<b>1297</b> id 1301	What is the wind direction and speed at 3 000 FT overhead position "Q" at 0600 UTC?
	<ul style="list-style-type: none"> <li>a <b>270° 30 kt.</b></li> <li>b 270° 15 kt.</li> <li>c 240° 25 kt.</li> <li>d 240° 20 kt.</li> </ul>
<b>1298</b> id 1544	At which airport, is the following weather development taking place? (Chart 0600 UTC) TAF 060716 25006KT 8000 BKN240 BECMG 0710 OVC200 BECMG 1013 23010KT 8000 OVC100 BECMG 1316 23014KT 6000 RA SCT030 OVC050 =
	<ul style="list-style-type: none"> <li>a EGLL</li> <li>b LFPO</li> <li>c <b>EDDF</b></li> <li>d LEMD</li> </ul>
<b>1299</b> id 1545	What weather conditions are expected at Paris airport (LFPO) around 1300 UTC?
	<ul style="list-style-type: none"> <li>a <b>23014KT 3000 +RA SCT008 OVC025 15/13 Q1004 NOSIG =</b></li> <li>b 26012KT 9999 SCT025 SCT040 14/09 Q1018 TEMPO 5000 SHRA =</li> <li>c 22020G36KT 1500 TSGR SCT004 BKN007 BKN025CB 18/13 Q1009 BECMG NSW =</li> <li>d 20004KT 8000 SCT110 SCT250 22/08 Q1016 NOSIG =</li> </ul>
<b>1300</b> id 1589	Over Madrid, what intensity of turbulence and icing is forecast at FL 200 ?
	<ul style="list-style-type: none"> <li>a <b>Moderate turbulence and icing</b></li> <li>b Moderate turbulence, light icing</li> <li>c Severe turbulence, moderate icing</li> <li>d Severe turbulence, severe icing</li> </ul>
<b>1301</b> id 1590	At what approximate flight level is the tropopause over Frankfurt?
	<ul style="list-style-type: none"> <li>a FL 300</li> <li>b <b>FL 330</b></li> <li>c FL 350</li> <li>d FL 240</li> </ul>
<b>1302</b> id 1591	Select from the map the wind for the route Zurich - London at FL 280.
	<ul style="list-style-type: none"> <li>a 040 / 60</li> <li>b 250 / 80</li> <li>c <b>220 / 50</b></li> <li>d 160 / 90</li> </ul>
<b>1303</b> id 1592	What is the average wind at FL 160 between Zurich and Rome ?
	<ul style="list-style-type: none"> <li>a 050/40</li> <li>b <b>020/50</b></li> <li>c 200/45</li> <li>d 200/40</li> </ul>

<b>1304</b> id 1593	The temperature at FL 330 overhead London will be
<b>a -42°C</b>	
b -30°C	
c -33°C	
d -57°C	
<b>1305</b> id 1598	What wind is forecast at FL 390 over Paris ?
a 030/40	
b 230/20	
<b>c 210/40</b>	
d 190/40	
<b>1306</b> id 1599	What is the average temperature at FL 160 between Oslo and Paris ?
a -11°C	
b -23°C	
<b>c -19°C</b>	
d -25°C	
<b>1307</b> id 1600	What is the temperature deviation in degrees Celsius, from the International Standard Atmosphere overhead Frankfurt ?
a ISA + 2°C	
<b>b ISA -13°C</b>	
c ISA +13°C	
d ISA +8°C	
<b>1308</b> id 1601	What is the speed of the front located over France?
a 30 kt	
b 25 kt	
c 10 kt	
<b>d 15 kt</b>	
<b>1309</b> id 1602	Flight Munich to London. What is the direction and maximum speed of the jet stream affecting the route between Munich and London ?
<b>a 230° / 120 kt</b>	
b 220° / 120 km/h	
c 050° / 120 kt	
d 230° / 120 m/sec	
<b>1310</b> id 1605	Flight Shannon to London. What is forecast for the eastern sector of the route between Shannon and London at FL 220 ?
a Scattered towering cumulus	
b Overcast nimbo layered cumulonimbus	
<b>c Moderate or severe turbulence and icing</b>	
d Scattered castellanus	

<b>1311</b> id 1606	Over Amsterdam, what amount and general type of cloud would you expect at FL 160 ?
	<b>a Mainly 5 to 8 oktas</b> b 4 oktas broken cumulus c Isolated cumulonimbus only d 5 to 7 oktas towering cumuliform cloud and with moderate turbulence
<b>1312</b> id 1607	To what extent is Munich covered by clouds ?
	<b>a 5 to 8 oktas</b> b 1 to 4 oktas c 5 to 7 oktas d 3 to 5 oktas
<b>1313</b> id 1608	What OAT would you expect at FL 200 over Geneva ?
	<b>a -24°C</b> b -20°C c -16°C d -28°C
<b>1314</b> id 1813	Assuming a normal vertical temperature gradient, at what altitude will the freezing level above Tunis be found?
	<b>a FL 100</b> b FL 20 c FL 180 d FL 240
<b>1315</b> id 1814	What is the mean temperature deviation from ISA for the Frankfurt - Roma route?
	<b>a 9°C colder than ISA</b> b 4°C warmer than ISA <b>c 4°C colder than ISA</b> d 9°C warmer than ISA
<b>1316</b> id 1815	Select from the map the average wind for the route Athens - Geneva at FL 160.
	<b>a 240/40</b> b 210/25 c 260/40 d 050/35
<b>1317</b> id 1816	Select from the map the average temperature for the route Athens - Geneva at FL 150.
	<b>a -21°C</b> <b>b -14°C</b> c -11°C d -27°C

<b>1318</b> id 1817	What is the deviation of the temperature at FL 140 above Copenhagen compared to ISA?
	<ul style="list-style-type: none"> <li>a 4°C warmer than ISA</li> <li><b>b 9°C colder than ISA</b></li> <li>c 9°C warmer than ISA</li> <li>d 12°C colder than ISA</li> </ul>
<b>1319</b> id 1818	Select from the map the average wind for the route Zurich - Hamburg at FL 240.
	<ul style="list-style-type: none"> <li><b>a 230/15</b></li> <li>b 020/20</li> <li>c 200/15</li> <li>d 260/25</li> </ul>
<b>1320</b> id 1819	Select from the map the average temperature for the route Zurich - Lisboa at FL 200.
	<ul style="list-style-type: none"> <li><b>a -33°C</b></li> <li>b -30°C</li> <li>c -41°C</li> <li>d -49°C</li> </ul>
<b>1321</b> id 1820	Select from the map the average wind for the route Shannon - Lisboa at FL 290.
	<ul style="list-style-type: none"> <li>a 030/70</li> <li><b>b 360/80</b></li> <li>c 190/75</li> <li>d 340/90</li> </ul>
<b>1322</b> id 1821	Select from the map the average temperature for the route Geneva -Stockholm at FL 260.
	<ul style="list-style-type: none"> <li>a -55°C</li> <li>b -51°C</li> <li><b>c -47°C</b></li> <li>d -63°C</li> </ul>
<b>1323</b> id 1822	On which of the following routes can you expect icing to occur, on the basis of the chart?
	<ul style="list-style-type: none"> <li><b>a Rome - Frankfurt</b></li> <li>b Hamburg - Oslo</li> <li>c Tunis - Rome</li> <li>d Copenhagen - Helsinki</li> </ul>
<b>1324</b> id 1823	Looking at the chart, at what altitude above Frankfurt would you expect the tropopause to be located?
	<ul style="list-style-type: none"> <li>a FL 310</li> <li><b>b FL 350</b></li> <li>c FL 250</li> <li>d FL 280</li> </ul>

<b>1325</b> id 1824	<p>If you are flying from Zurich to London at FL 220, what conditions can you expect at cruising altitude?</p> <p>a Flight largely in cloud; no turbulence</p> <p><b>b Scattered thunderstorms</b></p> <p>c Prolonged severe turbulence and icing throughout the flight</p> <p>d CAT for the first half of the flight</p>
<b>1326</b> id 1825	<p>Which of the following statements is true?</p> <p>a Thunderclouds have formed over the Iberian peninsula extending to some 25000 meters</p> <p>b The jet stream above Italy has a maximum speed of 120 km/h</p> <p><b>c The front to the north of Frankfurt is moving north-east at about 5 kt</b></p> <p>d There is no significant cloud above Rome</p>
<b>1327</b> id 1826	<p>On which of these routes would you not have to worry about turbulence at FL 340?</p> <p>a Rome - Berlin</p> <p>b Zurich - Rome</p> <p>c Zurich - Athens</p> <p><b>d Shannon - Hamburg</b></p>
<b>1328</b> id 1827	<p>If you are flying from Zurich to Stockholm at FL 240, what conditions can you expect at cruising altitude?</p> <p>a Out of cloud throughout the flight</p> <p>b Cloud most of the way; little chance of CAT</p> <p>c Scattered thunderstorms</p> <p><b>d Largely free of cloud; moderate icing half way along the route</b></p>
<b>1329</b> id 1828	<p>Judging by the chart, what windspeeds can you expect at FL 340 above Rome?</p> <p>a 340 kt</p> <p><b>b 145 kt</b></p> <p>c 95 kt</p> <p>d 140 km/h</p>
<b>1330</b> id 1829	<p>Judging by the chart, on which of these routes can you expect to encounter moderate and locally severe CAT at FL 300?</p> <p><b>a Zurich - Rome</b></p> <p>b London - Zurich</p> <p>c Zurich - Copenhagen</p> <p>d Paris - Bordeaux</p>
<b>1331</b> id 1929	<p>To which aerodrome is the following TAF most applicable ? TAF 231019 24014KT 6000 SCT030 BKN100 TEMPO 1113 25020G38KT 2500 +TSRA SCT008 BKN025CB BECMG 1315 28012KT 9999 SCT025 TEMPO 5000 SHRA BKN020 BECMG 1719 27008KT 9999 SCT030</p> <p>a LFPG</p> <p>b LEMD</p> <p><b>c LOWW</b></p> <p>d EKCH</p>

<b>1332</b> id 2523	At which airport is the following weather development taking place? TAF 231322 24014G32KT 4000 +TSRA SCT005 BKN015 BKN020CB BECMG 1416 29012KT 9999 BKN030TCU SCT100 TEMPO 8000 SHRA BKN025TCU BECMG 1922 27012KT 9999 SCT030 OVC220 = (chart 1200 UTC)
	<ul style="list-style-type: none"> <li>a <b>EINN</b></li> <li>b ESSA</li> <li>c ENFB</li> <li>d EKCH</li> </ul>
<b>1333</b> id 2524	Which of the following weather conditions would be expected at Athens Airport (LGAT) at around 1450 UTC? (chart 1200 UTC)
	<ul style="list-style-type: none"> <li>a 26014KT 8000 BKN090 17/12 Q1009 BECMG 4000 =</li> <li>b 16002KT 0200 R33L/0600N FG VV001 12/12 Q1031 BECMG 0800 =</li> <li>c <b>21002KT 6000 BR SCT040 29/16 Q1026 NOSIG =</b></li> <li>d 23018G35KT 9999 SCT035 10/04 Q0988 NOSIG =</li> </ul>
<b>1334</b> id 2525	Which airport is most likely to have fog in the coming night?
	<ul style="list-style-type: none"> <li>a ENFB</li> <li>b <b>LSZH</b></li> <li>c EKCH</li> <li>d ESSA</li> </ul>
<b>1335</b> id 2526	Select from the map the average wind for the route Zurich - Rome at FL110.
	<ul style="list-style-type: none"> <li>a <b>230/10</b></li> <li>b 200/30</li> <li>c 040/10</li> <li>d 250/20</li> </ul>
<b>1336</b> id 2527	Select from the map the average temperature for the route Zurich - Rome at FL 110.
	<ul style="list-style-type: none"> <li>a -6°C</li> <li>b -12°C</li> <li>c <b>-9°C</b></li> <li>d +5°C</li> </ul>
<b>1337</b> id 2528	Look at the chart. Assuming a normal vertical temperature gradient, at what altitude will the freezing level above Shannon be found?
	<ul style="list-style-type: none"> <li>a FL 20</li> <li>b <b>FL 60</b></li> <li>c FL 140</li> <li>d FL 120</li> </ul>
<b>1338</b> id 2529	Select from the map the average wind for the route Frankfurt - Roma at FL 170.
	<ul style="list-style-type: none"> <li>a <b>230/40</b></li> <li>b 200/50</li> <li>c 050/40</li> <li>d 030/35</li> </ul>

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- 1339** | 8/8 stratus base 200 FT/AGL is observed at sunrise at an aerodrome in the north  
id 2542 of France; the QNH is 1028 hPa and there is a variable wind of 3 kt. What change in these clouds is likely at 12:00 UTC in summer and winter?
- a Winter: BKN base 2500 FT/AGL; summer BKN base 3500 FT/AGL.
  - b Winter: clear sky; summer BKN CB base 1500 FT/AGL.
  - c **Winter: OVC base 500 FT/AGL; summer SCT base 3000 FT/AGL.**
  - d Winter: SCT base 3000 FT/AGL; summer OVC base 500 FT/AGL.
- 

- 1340** | A pilot is warned of severe icing at certain flight levels by information supplied in  
id 3997
- a TAF and SIGMET
  - b TAF and METAR
  - c METAR and SIGMET
  - d **SWC and SIGMET**

#### 50.10.03.05. Measuring and warning systems for low level windsh

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- 1341** | What units are used to report vertical wind shear?  
id 711
- a kt.
  - b **kt/100 FT.**
  - c m/100 FT.
  - d m/sec.

#### 50.10.03.06. Special meteorological warnings

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- 1342** | Which of the following weather reports is a warning of conditions that could be  
id 712 potentially hazardous to aircraft in flight ?
- a SPECI.
  - b ATIS.
  - c **SIGMET.**
  - d TAF.
- 

- 1343** | In which of the following circumstances is a SIGMET issued ?  
id 713
- a Clear ice on the runways of an aerodrome.
  - b Fog or a thunderstorm at an aerodrome.
  - c **Marked mountain waves.**
  - d A sudden change in the weather conditions contained in the METAR.