

# **40. HUMAN PERFORMANCE AND LIMITATIONS**

## 40.1. Human Factors: basic concepts

### 40.1.1. Human Factors in aviation

#### 40.1.1.1. Competence and limitations

0 id 2146	Concerning the relation between performance and stress, which of the following statement(s) is (are) correct? <b>a</b> A student will learn faster and better under severe stress. <b>b A moderate level of stress may improve performance.</b> <b>c</b> Domestic stress will not affect the pilot's performance because he is able to leave this type of stress on the ground. <b>d</b> A well trained pilot is able to eliminate any kind of stress completely when he is scheduled to fly.
1 id 2147	Stress is a frequent aspect of the pilot's job. Under which of the following circumstances does it occur? 1. Stress occurs whenever the pilot must revise his plan of action and does not immediately have a solution 2. Stress occurs with unexperienced pilots when the situational demands exceed their individual capabilities 3. Stress occurs if a pilot is convinced that he will not be able to find a solution for the problem he just is confronted with <b>a 1, 2 and 3 are correct</b> <b>b</b> Only 1 is false <b>c</b> 1 and 2 are correct, 3 is false <b>d</b> 1 is correct, 2 and 3 are false
2 id 2148	Divided attention is the ability : 1. to execute several mental activities at almost the same time (i.e. when switching attention from outside the aircraft to the airspeed indicator on the instrument panel) 2. to monitor the progress of a motor programme (i.e. flying or taxiing the airplane) on a relatively subconscious level, while making a radio call at the same time (requiring a rather conscious level) 3 .to select information and check if it is relevant to the task in hand. At the same time no other operation can be performed. 4. to delegate tasks to the copilot while concentrating on the procedures <b>a</b> Only 3 is false <b>b</b> 1,2 and 3 are correct, 4 is false <b>c</b> 1 and 3 are correct, 2 and 4 are false <b>d 1 and 2 are correct, 3 and 4 are false</b>
3 id 2149	The physiology of stress is now well known: <b>a</b> the only stress hormone is adrenaline <b>b stress promotes an increase in physical strength rather than promoting mental performance</b> <b>c</b> stress develops in 2 stages: sublimation of performance and then acceleration of heart rate and increase in vision <b>d</b> stress slows down the production of sugar by the organism and thereby slows down the heart rate
4 id 2150	An overstressed pilot may show the following symptoms: 1. mental blocks, confusion and channelized attention 2. resignation, frustration, rage 3. deterioration in motor coordination 4. high pitch voice and fast speaking <b>a</b> 1 and 2 are correct, 3 and 4 are false <b>b</b> 1, 2 and 3 are correct, 4 is false <b>c 1, 2, 3 and 4 are correct</b> <b>d</b> 1and 3 are correct, 2 and 4 are false

<b>5</b> id 6332	According to Jens Rasmussen, riding a bicycle is:
<b>a</b>	rule based behaviour not requiring conscious thought
<b>b</b>	rule based behaviour requiring conscious thought
<b>c</b>	<b>skill based behaviour</b>
<b>d</b>	knowledge based behaviour

<b>6</b> id 6351	What is meant by "divided attention"?
<b>a</b>	<b>Switching of attention from one set of stimuli to another</b>
<b>b</b>	Focusing on non-essential information
<b>c</b>	Sampling of stimuli, and selection of one of them for further processing
<b>d</b>	None of the above is correct

#### 40.1.1.2. Becoming a competent pilot

<b>7</b> id 2119	In the initial phase of flight training the relationship between confidence and expertise can be described as:
<b>a</b>	<b>the pilot is competent enough to fly the aircraft at this stage, but does neither have a great deal of confidence in his/her abilities nor in the whole system</b>
<b>b</b>	the pilot is sufficiently competent to fly and knows at this stage what he can and cannot do
<b>c</b>	during this learning stage, the pilot is very near to achieving full potential knowledge of the machine
<b>d</b>	the pilot has a sphere of expertise which is reduced to daily use of his skills

<b>8</b> id 3624	A pilot is skilled when he : -1 : trains or practises regularly -2 : knows how to manage himself/herself -3 : possesses all the knowledge associated with his aircraft -4 : knows how to keep resources in reserve for coping with the unexpected
<b>a</b>	<b>1,2,4</b>
<b>b</b>	1,2,3,4
<b>c</b>	1,2
<b>d</b>	2, 3,4

<b>9</b> id 6335	You are flying from London to Oslo as commander. One of your passengers suffers a heart attack during flight, and the situation is life threatening for him. You evaluate the situation, and decide to divert to Amsterdam. What type of behaviour is this, according to Jens Rasmussen?
<b>a</b>	Skill based behaviour
<b>b</b>	Rule based behaviour
<b>c</b>	<b>Knowledge based behaviour</b>
<b>d</b>	System based behaviour

#### 40.1.2. Accident statistics

<b>10</b> id 725	The rate of accidents in commercial aviation (excluding sabotage and acts of terrorism) :
<b>a</b>	has improved considerably over the last fifteen years
<b>b</b>	<b>is approximatively 1 accident per million airport movements</b>
<b>c</b>	is a long way short of the safety level of road transport
<b>d</b>	represents about fifty accidents around the world every year

<b>11</b> id 727	As a cause of accidents, the human factor
	<ul style="list-style-type: none"> <li>a which is cited in current statistics, applies to the flight crew and ATC only</li> <li>b has increased considerably since 1980 - the percentage of accident in which this factor has been involved has more than tripled since this date</li> <li><b>c is cited in approximately 70 - 80 % of aviation accidents</b></li> <li>d plays a negligible role in commercial aviation accidents. It is much more important in general aviation</li> </ul>
<b>12</b> id 2351	What airplane equipment marked a substantial decrease in hull loss rates in the eighties?
	<ul style="list-style-type: none"> <li>a DME</li> <li><b>b GPWS</b></li> <li>c SSR</li> <li>d TCAS</li> </ul>
<b>13</b> id 3634	In civil air transport, linear accelerations (Gx): - 1 : do not exist - 2 : have slight physiological consequences - 3 : may, in the case of pull-out, lead to loss of consciousness - 4 : cause sensory illusions on the pitch axis
	<ul style="list-style-type: none"> <li><b>a 2,4</b></li> <li>b 1</li> <li>c 3,4</li> <li>d 3</li> </ul>
<b>14</b> id 6260	Which of the following symptoms is not typical for a decompression sickness:
	<ul style="list-style-type: none"> <li>a Creeps</li> <li><b>b red out</b></li> <li>c chokes</li> <li>d bends</li> </ul>
<b>15</b> id 6274	The following statements are true except
	<ul style="list-style-type: none"> <li><b>a poor circulation is called hypoxic hypoxia</b></li> <li>b reduced oxygen carrying capacity is called hypemic hypoxia</li> <li>c reduced alveolar oxygen exchange is called hypoxic hypoxia</li> <li>d inability of the tissue to use oxygen is called histotoxic hypoxia</li> </ul>
<b>16</b> id 6275	The following situations can lead to stagnant hypoxia
	<ul style="list-style-type: none"> <li>a reduced number of healthy red blood cells</li> <li><b>b excessive G forces</b></li> <li>c reduced partial oxygen pressure due to high altitude</li> <li>d alcohol or drugs</li> </ul>
<b>17</b> id 6276	Smoking can cause hypoxia due to an increase in carbon monoxide. This is called
	<ul style="list-style-type: none"> <li><b>a</b></li> <li>a hypoxic hypoxia</li> <li>b stagnant hypoxia</li> <li>c histotoxic hypoxia</li> <li><b>d hypemic hypoxia</b></li> </ul>

<b>18</b> id 6277	Stages of performance decrements due to hypoxic hypoxia are
	<ul style="list-style-type: none"> <li>a disturbance threshold at 6'000 ft, critical threshold at 22'000 ft</li> <li>b reaction threshold at 6'000 ft, disturbance threshold at 22'000 ft</li> <li><b>c indifferent stage up to 6'000 ft, disturbance threshold at 12'000 ft</b></li> <li>d critical threshold at 12'000 ft, disturbance stage above 22'000 ft</li> </ul>
<b>19</b> id 6278	The most dangerous sign of hypoxic hypoxia is
	<ul style="list-style-type: none"> <li><b>a impaired judgment and self criticism</b></li> <li>b decreased heart rate</li> <li>c increased respiration rate</li> <li>d bluish skin</li> </ul>
<b>20</b> id 6279	TUC at 25'000 ft at rest is about
	<ul style="list-style-type: none"> <li>a 45 seconds</li> <li>b 90 seconds</li> <li><b>c 4 minutes</b></li> <li>d 10 minutes</li> </ul>
<b>21</b> id 6281	A common phenomenon of hypoxia and hyperventilation is
	<ul style="list-style-type: none"> <li>a impaired judgment and self criticism</li> <li>b shortness of breath</li> <li>c hypotension of the muscles</li> <li><b>d tingling sensation of arms and legs</b></li> </ul>
<b>22</b> id 6282	The following statement about respiration is true
	<ul style="list-style-type: none"> <li>a external respiration serves for the gas exchange between blood and tissue cells</li> <li>b internal respiration serves for the gas exchange between environment and blood</li> <li>c transport of carbon dioxide in the blood is made by combination with hemoglobin</li> <li><b>d transport of oxygen in the blood is made by combination with hemoglobin</b></li> </ul>
<b>23</b> id 6283	Oxygen is transported through the walls of the alveoli according to
	<ul style="list-style-type: none"> <li>a Henry's law</li> <li><b>b the Diffusion law</b></li> <li>c Dalton's law</li> <li>d Boyle's law</li> </ul>
<b>24</b> id 6284	A healthy young subject should have the following lung volumes
	<ul style="list-style-type: none"> <li>a an inspiratory reserve volume of ~0.5 liter</li> <li>b an expiratory reserve volume of ~0.5 liter</li> <li><b>c a residual volume of 1.2 liter</b></li> <li>d a vital capacity of ~7.0 liter</li> </ul>

25 id 6285	Usually, the body has a remarkable store of the following gases
<ul style="list-style-type: none"> <li>a <b>carbon dioxide</b></li> <li>b oxygen</li> <li>c carbon monoxide</li> <li>d argon</li> </ul>	
26 id 6286	The respiratory control center is primarily sensitive to
<ul style="list-style-type: none"> <li>a <b>carbon dioxide</b></li> <li>b carbon monoxide</li> <li>c oxygen</li> <li>d argon</li> </ul>	
27 id 6287	Ventilation is primarily stimulated by
<ul style="list-style-type: none"> <li>a an increase of carbon monoxide</li> <li>b a decrease of oxygen</li> <li>c <b>an increase of carbon dioxide</b></li> <li>d a decrease of argon</li> </ul>	
28 id 6288	The following statement is true
<ul style="list-style-type: none"> <li>a <b>increased carbon dioxide causes shortness of breath</b></li> <li>b decreased oxygen causes shortness of breath</li> <li>c increased carbon dioxide remains unnoticed</li> <li>d increased oxygen causes shortness of breath</li> </ul>	
29 id 6289	The partial pressure of the respiratory gases within the pulmonary alveoli is
<ul style="list-style-type: none"> <li>a <b>40 mmHg pCO<sub>2</sub>, 47 mmHg pH<sub>2</sub>O, 100 mmHg O<sub>2</sub></b></li> <li>b 47 mmHg pH<sub>2</sub>O, 150 mmHg O<sub>2</sub>, 0.03 mmHg pCO<sub>2</sub></li> <li>c 46 mmHg pCO<sub>2</sub>, 47 mmHg pH<sub>2</sub>O, 40 mmHg O<sub>2</sub></li> <li>d 5 mmHg pCO<sub>2</sub>, 10 mmHg pH<sub>2</sub>O, 150 mmHg O<sub>2</sub></li> </ul>	
30 id 6290	Signs or symptoms of hyperventilation are
<ul style="list-style-type: none"> <li>a increased rate and depth of respiration</li> <li>b muscle twitching and tightness</li> <li>c breathlessness, feelings of suffocation</li> <li>d <b>all above mentioned signs or symptoms</b></li> </ul>	
31 id 6291	The problems of hyperventilation are caused by
<ul style="list-style-type: none"> <li>a increased inhaling of oxygen</li> <li>b <b>increased exhaling of carbon dioxide</b></li> <li>c decreased exhaling of carbon dioxide</li> <li>d decreased inhaling of oxygen</li> </ul>	

32 id 6292	<p>The following maneuvers may be used to treat a hyperventilation except</p> <ul style="list-style-type: none"> <li>a slowing the breathing rate</li> <li><b>b increasing rate and depth of breathing</b></li> <li>c talking aloud</li> <li>d back breathing into a paper bag</li> </ul>
33 id 6293	<p>The symptoms of hyperventilation are easily confused with those of</p> <ul style="list-style-type: none"> <li><b>a hypoxia</b></li> <li>b hypertension</li> <li>c hypotension</li> <li>d hyperopia</li> </ul>
34 id 6294	<p>The heart consist of</p> <ul style="list-style-type: none"> <li>a two atriums, four ventricles and two valves</li> <li>b four atriums, four ventricles and two valves</li> <li>c two atriums, two ventricles and two valves</li> <li><b>d two atriums, two ventricles and four valves</b></li> </ul>
35 id 6295	<p>Expired air contains</p> <ul style="list-style-type: none"> <li>a 15% oxygen and 0.03% carbon dioxide</li> <li><b>b 15% oxygen and 4% carbon dioxide</b></li> <li>c 21% oxygen and 4% carbon dioxide</li> <li>d 21% oxygen and 0.03% carbon dioxide</li> </ul>
36 id 6296	<p>The following statements are true except</p> <ul style="list-style-type: none"> <li><b>a pulmonary veins contain venous blood</b></li> <li>b arterial blood is oxygen enriched</li> <li>c pulmonary arteries contain venous blood</li> <li>d venous blood is low on oxygen</li> </ul>
37 id 6297	<p>The following statements are false except</p> <ul style="list-style-type: none"> <li>a a healthy subject has ~7.5 liters of blood</li> <li><b>b blood consists of ~45% blood cells and ~55% blood plasma</b></li> <li>c blood plasma consists of leukocytes, erythrocytes and thrombocytes</li> <li>d platelets are responsible for protection from infectious diseases</li> </ul>
38 id 6306	<p>What is the correct remedial action if symptoms of hyperventilation occur at an altitude where hypoxia is not a consideration?</p> <ul style="list-style-type: none"> <li>a increase rate and depth of breathing</li> <li>b increase rate and decrease depth of breathing</li> <li>c decrease rate and increase depth of breathing</li> <li><b>d decrease rate and depth of breathing</b></li> </ul>

<b>39</b> id 6312	A pilot who has been scuba diving should avoid flying: <b>a Within 12 hours, or 24 hours if a depth of 30 ft has been exceeded</b> b Within 24 hours, or 48 hours if a depth of 30 ft has been exceeded c Within 36 hours of the last dive d Without medical advice if a depth of 30 ft has been exceeded
<b>40</b> id 6318	The time of useful consciousness without oxygen at an altitude of 25 000 ft is: <b>a 2 – 3 minutes</b> b 30 minutes c 45 – 75 seconds d 12 seconds
<b>41</b> id 6326	The term "pilot error" constitute a certain relative amount of main causes in air accidents. Which of the following is correct? <b>a Around 70%</b> b Around 95% c Around 20 % d Around 50 %
<b>42</b> id 6331	A person experiencing light headaches, dizziness, tingling at the fingertips and breathing rapidly may be suffering from: <b>a hypoxia or hyperventilation</b> b hyperventilation only c hypoxia only d carbon monoxide poisoning
<b>43</b> id 6346	At an altitude where the pressure is half of that at sea level a person will have to: <b>a breathe pure oxygen</b> b breathe pressurized oxygen c <b>use supplementary oxygen</b> d breathe slow to avoid hypoxia
<b>44</b> id 6357	Which would most likely result in hyperventilation? <b>a Emotional tension, anxiety or fear</b> b An extremely slow rate of breathing and insufficient oxygen c The excessive consumption of alcohol d Diving within 24 hours before flying
<b>45</b> id 6363	Which one of the following signs distinguishes hypoxia from hyperventilation? <b>a Cyanosis</b> b Sensory loss c Dizziness d Headache



<b>46</b> id 6366	What is a normal blood pressure?
<b>a</b>	<b>Diastolic 80 mm Hg Systolic 120 mm Hg</b>
<b>b</b>	Diastolic 120 mm Hg Systolic 80 mm Hg
<b>c</b>	Diastolic 80 mm Hg Systolic 40 mm Hg
<b>d</b>	Diastolic 40 mm Hg Systolic 80 mm Hg
<b>47</b> id 6371	A person experiences increased breathing rate. Which of the following is the most likely explanation?
<b>a</b>	a low level of waste carbon dioxide in the lungs
<b>b</b>	<b>a high level of waste carbon dioxide in the lungs</b>
<b>c</b>	a high level of water vapour in the lungs
<b>d</b>	a low level of water vapour in the lungs
<b>48</b> id 6376	What is the remedy for decompression sickness, or "bends"?
<b>a</b>	decrease the pressure on the body
<b>b</b>	increase the amount of oxygen
<b>c</b>	decrease the rate and depth of breathing
<b>d</b>	<b>increase the pressure on the body</b>
<b>49</b> id 6396	What is the name of the blood vessels which carry blood away from the cells?
<b>a</b>	Capillaries
<b>b</b>	<b>Veins</b>
<b>c</b>	Aorta
<b>d</b>	Arteries
<b>50</b> id 6398	Up to what altitude will generally healthy people be able to stay without showing any signs of suffering from hypoxia?
<b>a</b>	Up to 3000 feet
<b>b</b>	<b>Up to 10-12000 feet</b>
<b>c</b>	Up to 18000 feet
<b>d</b>	Up to 21000 feet

### 40.1.3. Flight safety concepts

<b>51</b> id 730	Thinking on human reliability is changing.
<b>a</b>	The individual view of safety has gradually replaced the systemic view of safety
<b>b</b>	Human errors can be avoided. All it takes is to be vigilant and to extend one's knowledge
<b>c</b>	<b>Human errors are now considered as being inherent to the cognitive function of human and are generally inescapable</b>
<b>d</b>	It is thought that it will be possible to eliminate errors in the near future
<b>52</b> id 2356	Between which components is an interface mismatch causing an error of interpretation by using an old three-point altimeter?
<b>a</b>	Liveware - Environment
<b>b</b>	Liveware - Software
<b>c</b>	<b>Liveware - Hardware</b>
<b>d</b>	Liveware - Liveware

<b>53</b> id 2357	Between which components is an interface mismatch responsible for deficiencies in conceptual aspects of warning systems?
	<ul style="list-style-type: none"> <li>a Liveware - Liveware</li> <li>b Liveware - Hardware</li> <li>c Liveware - Environment</li> <li><b>d Liveware - Software</b></li> </ul>
<b>54</b> id 2358	Between which components is an interface mismatch causing disturbance of the biological rhythm, thus leading to reduced human performance?
	<ul style="list-style-type: none"> <li><b>a Liveware - Environment</b></li> <li>b Liveware - Hardware</li> <li>c Liveware - Software</li> <li>d Liveware - Liveware</li> </ul>
<b>55</b> id 2359	The errors resulting from an irrational indexing system in an operations manual are related to an interface mismatch between
	<ul style="list-style-type: none"> <li>a Liveware - Hardware</li> <li><b>b Liveware - Software</b></li> <li>c Liveware - Environment</li> <li>d Liveware - Liveware</li> </ul>
<b>56</b> id 6324	What does the "H" in the SHELL model mean?
	<ul style="list-style-type: none"> <li>a Health</li> <li>b Harley-Davidson</li> <li>c Human</li> <li><b>d Hardware</b></li> </ul>
<b>57</b> id 6336	What is the meaning of the "S" in the SHELL model?
	<ul style="list-style-type: none"> <li>a Signals and indications</li> <li>b Symbols</li> <li><b>c Software</b></li> <li>d Safety</li> </ul>
<b>58</b> id 6349	What is meant by Episodic memory?
	<ul style="list-style-type: none"> <li>a memory of information, held in the long term memory</li> <li>b memory of events, held in the short term memory</li> <li>c memory of information, held in the short term memory</li> <li><b>d memory of experienced events, held in the long term memory.</b></li> </ul>

## 40.2. Basic aviation physiology and health maintenance

### 40.2.1. Basics of flight physiology

#### 40.2.1.1. The atmosphere

<b>59</b> id 71	The atmospheric gas pressure
<b>a drops faster at lower altitudes in comparison to the same altitude changes at higher altitudes</b>	
<b>b rises with altitude</b>	
<b>c decreases linear with altitude</b>	
<b>d decreases slower at lower altitudes compared with higher levels and equivalent altitude changes</b>	
<b>60</b> id 72	A certain amount of water vapor saturated air (i.e. intestinal gases) is transported from sea-level up to 34 000 ft. In the same amount of dry air, the volume of this gas is :
<b>a constant</b>	
<b>b smaller</b>	
<b>c larger</b>	
<b>d first larger, then smaller</b>	
<b>61</b> id 75	You can survive at any altitude, provided that
<b>a the temperature in the cabin does not drop below 10° C</b>	
<b>b 21% oxygen is available in the air you breath in</b>	
<b>c pressure respiration is guaranteed for that altitude</b>	
<b>d enough oxygen, pressure and heat is available</b>	
<b>62</b> id 78	Fatigue and permanent concentration
<b>a lower the tolerance to hypoxia</b>	
<b>b increase the tolerance to hypoxia</b>	
<b>c do not affect hypoxia at all</b>	
<b>d will increase the tolerance to hypoxia when flying below 15 000 feet</b>	
<b>63</b> id 79	The atmosphere contains the following gases:
<b>a 78% helium, 21% oxygen, 1% carbon monoxide, rest: rare gases</b>	
<b>b 78% nitrogen, 21% oxygen, 1% carbon monoxide, rest: rare gases</b>	
<b>c 78% nitrogen, 21% oxygen, 0,03% carbon dioxide, rest: rare gases</b>	
<b>d 78% helium, 21% oxygen, 0,03% carbon dioxide, rest: rare gases</b>	
<b>64</b> id 80	The earth's atmosphere consists of different gases in various concentration. Match the following: 1 nitrogen    A 0,03% 2 oxygen    B 0,92% 3 carbon dioxide    C 20.95% 4 rare gas    D 78,10%
<b>a 1D, 2C, 3B, 4A</b>	
<b>b 1B, 2A, 3D, 4C</b>	
<b>c 1C, 2B, 3A, 4D</b>	
<b>d 1D, 2C, 3A, 4B</b>	

65 id 81	Gases of physiological importance to man are:
	<ul style="list-style-type: none"> <li>a <b>oxygen and carbon dioxide</b></li> <li>b nitrogen and carbon dioxide</li> <li>c oxygen and carbon monoxide</li> <li>d oxygen, nitrogen and water vapor</li> </ul>
66 id 82	The volume percentage of oxygen in the atmosphere is 21% which
	<ul style="list-style-type: none"> <li>a <b>is constant for all altitudes conventional airplanes can reach</b></li> <li>b decreases with increasing altitude</li> <li>c increases with increasing altitude</li> <li>d is dependent on the present air pressure</li> </ul>
67 id 83	The following applies for the physical properties of gases:
	<ul style="list-style-type: none"> <li>a at an altitude of 63 000 ft water will boil at temperature of 65°C</li> <li>b at an altitude of 18 000 ft a gas volume is three times as large as it would be at sea-level</li> <li>c a water vapor saturated gas at 34 000 ft has 6 times its volume as it would have at sea-level</li> <li>d <b>at sea-level a gas has 1/3 of the volume it would have at 27000 ft</b></li> </ul>
68 id 84	The percentage of oxygen in the air at an altitude of approximately 34 000 ft is :
	<ul style="list-style-type: none"> <li>a 10,5%</li> <li>b 5%</li> <li>c <b>21%</b></li> <li>d 42%</li> </ul>
69 id 94	An increase in the amount of carbon dioxide in the blood leads to:
	<ul style="list-style-type: none"> <li>a a reduction of red blood cells</li> <li>b a decrease of acidity in the blood</li> <li>c <b>shortness of breath</b></li> <li>d an improving resistance to hypoxia</li> </ul>
70 id 1677	The chemical composition of the earth's atmosphere (I C A O standard atmosphere) is
	<ul style="list-style-type: none"> <li>a 78 % nitrogen, 21 % oxygen, 0,9 % carbon dioxide, 0,03 % argon</li> <li>b <b>78 % nitrogen, 21 % oxygen, 0,9 % argon, 0,03 % carbon dioxide</b></li> <li>c 78 % nitrogen, 28 % oxygen, 0,9 % carbon dioxide, 0,03 % argon</li> <li>d 71 % nitrogen, 28 % oxygen, 0,9 % argon, 0,03 % carbon dioxide</li> </ul>
71 id 1678	According to the I.C.A.O. standard atmosphere, the temperature lapse rate of the troposphere is approximately
	<ul style="list-style-type: none"> <li>a <b>- 2 °C every 1000 feet</b></li> <li>b 10 °C every 100 feet</li> <li>c 2 °C every 1000 metres</li> <li>d constant in the troposphere</li> </ul>

<b>72</b> id 1679	The barometric pressure has dropped to 1/2 of the pressure at sea level at
<b>a</b>	25 000 feet
<b>b</b>	10 000 feet
<b>c</b>	<b>18 000 feet</b>
<b>d</b>	30 000 feet
<b>73</b> id 2156	The total pressure of a mixture of gases is equal to the sum of the partial pressures of the gases which compose the mixture corresponds to:
<b>a</b>	Graham's law
<b>b</b>	<b>Dalton's law</b>
<b>c</b>	Henry's law
<b>d</b>	Boyle Mariotte's law
<b>74</b> id 3685	The atmospheric pressure at 18,000 feet altitude is half the atmospheric pressure at sea level. In accordance with this statement,
<b>a</b>	the oxygen percentage of the air at that altitude will drop by one half also
<b>b</b>	the oxygen saturation of the blood at that altitude will drop by 50 % too
<b>c</b>	<b>the partial oxygen pressure at that altitude will also drop to 1/2 of the pressure of oxygen at sea level</b>
<b>d</b>	the partial oxygen pressure at that altitude will be doubled
<b>75</b> id 3688	The volume percentage of oxygen in the atmosphere at 30.000 feet remains at 21 %; but the partial pressure of oxygen :
<b>a</b>	<b>decreases with decreasing barometric pressure</b>
<b>b</b>	remains constant, independent from altitude
<b>c</b>	increases by expansion
<b>d</b>	decreases significantly with lower temperatures
<b>76</b> id 3691	Which data compose the ICAO standard atmosphere ? 1. Density 2. Pressure 3. Temperature 4. Humidity
<b>a</b>	3 , 4
<b>b</b>	1, 2 ,4
<b>c</b>	2,3 ,4
<b>d</b>	<b>1,2 ,3</b>
<b>77</b> id 3692	Boyle's law is directly applicable in case of:
<b>a</b>	hyperventilation with increasing altitude
<b>b</b>	the occurrence of decompression sickness at high altitude
<b>c</b>	the occurrence of hypoxia with increasing altitude
<b>d</b>	<b>the expansion of trapped gasses in the human body with increasing altitude</b>
<b>78</b> id 3693	Dalton's law explains the occurrence of :
<b>a</b>	creeps
<b>b</b>	bends
<b>c</b>	decompression sickness
<b>d</b>	<b>altitude hypoxia</b>

<b>79</b> id 3694	Henry's Law explains the occurrence of:  a hyperventilation b diffusion <b>c decompression sickness</b> d hypoxia
<b>80</b> id 3705	Oxygen, combined with hemoglobin in blood is transported by  a <b>red blood cells</b> b platelets c blood plasma d white blood cells
<b>81</b> id 6252	The composition of the atmosphere at 50 000 ft is  a 78% oxygen, 21% nitrogen, ~1% argon, 0.3% carbon dioxide b 78% nitrogen, 21% oxygen, ~1% argon, 0.3% carbon dioxide c 78% oxygen, 21% argon, ~1% nitrogen, 0.3% carbon dioxide <b>d 78% nitrogen, 21% oxygen, ~1% argon, 0.03% carbon dioxide</b>
<b>82</b> id 6253	The composition of the atmosphere  a <b>is constant up to ~100 km</b> b is constant up to ~500 km c changes proportional to the atmospheric pressure d changes above FL 500
<b>83</b> id 6254	The atmospheric pressure  a increases about exponentially with increasing altitude b is constant up to about 100 km <b>c decreases about exponentially with increasing altitude</b> d decreases linearly from sea level up to the tropopause
<b>84</b> id 6255	The atmospheric temperature  a <b>increases from sea level up to 1000 km</b> b decreases from the tropopause to the stratopause c remains constant from sea level up to the tropopause d increases from the stratopause to the mesopause
<b>85</b> id 6256	The temperature lapse rate  a within the stratosphere is ~2°C per 1000 ft b within the mesosphere is ~2°F per 1000 ft c within the troposphere is ~2°F per 1000 ft <b>d within the troposphere is ~2°C per 1000 ft</b>

<b>86</b> id 6257	The following statement about atmospheric humidity is true:
	<ul style="list-style-type: none"> <li>a the maximum absolute humidity at sea level is 100%</li> <li>b cold air can retain more water than hot air</li> <li><b>c the relative humidity measures percentage of water vapor saturation</b></li> <li>d the absolute humidity measures percentage of water vapor saturation</li> </ul>
<b>87</b> id 6258	The following statement about relative humidity is false:
	<ul style="list-style-type: none"> <li>a man feel comfortable at a relative humidity of 60.....70%</li> <li>b if an air mass is cooled its relative humidity increases</li> <li><b>c if an air mass is warmed, its relative humidity increases</b></li> <li>d during a long haul flight, relative humidity in the cockpit is very low</li> </ul>
<b>88</b> id 6259	The atmospheric pressure
	<ul style="list-style-type: none"> <li>a at 18 000 ft is half the amount of the pressure at 34 000 ft</li> <li>b at 27 000 ft is half the amount of the pressure at sea level</li> <li>c at sea level is half the amount of the pressure at 18 000 ft</li> <li><b>d at sea level is twice the amount of the pressure at 18 000 ft</b></li> </ul>
<b>89</b> id 6261	Boyle's law states
	<ul style="list-style-type: none"> <li>a the volume of a gas is proportional to its pressure</li> <li>b the pressure of a gas is inversely proportional to its temperature</li> <li>c the temperature of a gas is proportional to its volume</li> <li><b>d the volume of a gas is inversely proportional to its pressure</b></li> </ul>
<b>90</b> id 6262	Henry's law states
	<ul style="list-style-type: none"> <li>a the volume of a gas is inversely proportional to its pressure</li> <li>b the quantity of a gas dissolved in a liquid is proportional to the temperature of the gas</li> <li>c the quantity of a gas dissolved in a liquid is inversely proportional to the pressure of the gas</li> <li><b>d the quantity of a gas dissolved in a liquid is proportional to the partial pressure of the gas</b></li> </ul>
<b>91</b> id 6263	Dalton's law states
	<ul style="list-style-type: none"> <li>a the volume of a gas is inversely proportional to its pressure</li> <li><b>b the partial pressure of a gas is proportional to its fractional concentration in a gas mixture</b></li> <li>c the partial pressure of a gas in a mixture is inversely proportional to its temperature</li> <li>d the partial pressure of a gas in a mixture is inversely proportional to its fractional concentration</li> </ul>
<b>92</b> id 6264	Charles' law states
	<ul style="list-style-type: none"> <li><b>a the volume of a gas at constant pressure is proportional to its absolute temperature</b></li> <li>b the pressure of a gas at constant temperature is proportional to its volume</li> <li>c the volume of a gas at constant temperature is proportional to its absolute humidity</li> <li>d the relative temperature of a gas at constant pressure is proportional to its concentration</li> </ul>

<b>93</b>	The general gas law states
id 6265	
<b>a</b>	the total pressure of a gas mixture is equal to the sum of its partial pressures
<b>b</b>	the volume of a gas is proportional to its partial pressure
<b>c</b>	the volume of a gas multiplied by its absolute temperature divides by its pressure is constant
<b>d</b>	<b>the volume of a gas multiplied by its pressure divided by its absolute temperature is constant</b>
<b>94</b>	The statement: Adjacent gases of different concentration mix until the concentration is balanced:
id 6266	
<b>a</b>	is known as Henry's law
<b>b</b>	is known as Dalton's law
<b>c</b>	is known as Charle's law
<b>d</b>	<b>is known as Diffusion law</b>
<b>95</b>	The ozone layer
id 6267	
<b>a</b>	absorbs UV radiation up to a wavelength of 400 nm completely
<b>b</b>	absorbs high energy UV radiation less than low energy UV radiation
<b>c</b>	absorbs UVA better than UVB
<b>d</b>	<b>absorbs UVB better than UVA</b>
<b>96</b>	Ozone
id 6268	
<b>a</b>	<b>consists of molecular oxygen</b>
<b>b</b>	consists of oxygen and nitrogen
<b>c</b>	consists of atomic hydrogen
<b>d</b>	consists of molecular hydrogen
<b>97</b>	The following statement about UV radiation is false:
id 6269	
<b>a</b>	UVA penetrates deeply into the skin and causes sunburn
<b>b</b>	<b>UVB penetrates deeper into the skin than UVA and causes skin cancer</b>
<b>c</b>	UVC usually doesn't reach the earth
<b>d</b>	acute UV exposure can cause snow blindness
<b>98</b>	The ozone layer is
id 6270	
<b>a</b>	<b>in the stratosphere</b>
<b>b</b>	in the mesosphere
<b>c</b>	in the troposphere
<b>d</b>	at sea level
<b>99</b>	The following signs or symptoms may be harmful effects of ozone except
id 6271	
<b>a</b>	coughing
<b>b</b>	pulmonary oedema
<b>c</b>	shortness of breath
<b>d</b>	<b>bends and chokes</b>



<b>100</b> id 6272	The following statement about ozone is false:  a ozone can cause lung irritation at a concentration of 1.0 ppm b ozone impairs night vision c during a sunny day ozone is enriched more over industrial zones and urban areas <b>d during a sunny day ozone is enriched more over rural areas</b>
<b>101</b> id 6273	The following statement about UV radiation is false:  a light- skinned, blond, blue-eyed subjects are least sensitive to UV radiation <b>b dark-skinned, black-haired, brown-eyed subjects are least sensitive to UV radiation</b> c the harmful effects of UV radiation depend on the type of skin of a subject d the risk to accumulate harmful UV radiation is higher at FL 450 than at sea level
<b>102</b> id 6280	To maintain sea level conditions at 25'000 ft, the percentage of oxygen breathing is  a 100% <b>b 62 %</b> c 40 % d 21 %
<b>103</b> id 6330	What is the approximate percentage of oxygen in the atmosphere at 18000 ft?  a 11 % <b>b 21 %</b> c 43 % d 80 %
<b>104</b> id 6362	When exposed to decreasing barometric pressure, 1 litre of gas contained in the stomach and intestines at sea level will expand to 8 litres at:  a 10 000 feet b 18 000 feet c 25 000 feet <b>d 40 000 feet</b>
<b>105</b> id 6393	What is the content of Boyle's law?  a A gas temperature will decrease with increasing altitude b The pressure of a gas is proportional to altitude, with temperature remaining constant c The volume of a gas is proportional to its pressure, with temperature remaining constant <b>d The volume of a gas is inversely proportional to its pressure, with temperature remaining constant</b>
<b>106</b> id 6397	A balloon with 10 litres of air is brought from mean sea level up to 34 000 feet. What is the volume of the balloon at this altitude, provided the temperature is kept constant?  a 2.5 litres b 10 litres <b>c 40 litres</b> d 50 litres

### 40.2.1.2. Respiratory and circulatory systems

107 id 73	Breathing 100% oxygen at 38000 ft is equivalent to breathe ambient air at :
<ul style="list-style-type: none"><li>a 8 000 ft</li><li><b>b 10 000 ft</b></li><li>c 14 000 ft</li><li>d 18 000 ft</li></ul>	
108 id 74	At what altitude (breathing 100% oxygen without pressure) could symptoms of hypoxia be expected?
<ul style="list-style-type: none"><li>a 22 000 ft</li><li>b Approximately 10 - 12 000 ft.</li><li><b>c Approximately 38 - 40 000 ft.</b></li><li>d Approximately 35 000 ft.</li></ul>	
109 id 76	To safely supply the crew with oxygen, at which altitude is it necessary to breathe 100% oxygen plus pressure after a rapid decompression ?
<ul style="list-style-type: none"><li>a Approximately 14 000 ft.</li><li><b>b Approximately 38 000 ft.</b></li><li>c Approximately 20 000 ft.</li><li>d Approximately 45 000 ft.</li></ul>	
110 id 77	When the pilot suffers from hypothermia (loss of cabin heating):
<ul style="list-style-type: none"><li><b>a his need for oxygen will be increased as long as he stays conscious</b></li><li>b his oxygen need will not be affected</li><li>c his oxygen need will be reduced giving him a better tolerance to hypoxia at higher altitudes</li><li>d his oxygen need will be raised and his tolerance to hypoxia will be increased</li></ul>	
111 id 85	The respiratory process consists mainly of
<ul style="list-style-type: none"><li>a the transportation of carbon dioxide to the cell and elimination of oxygen</li><li>b the transportation of oxygen to the cell and the elimination of carbon monoxide</li><li>c the transportation of oxygen to the cell and the elimination of nitrogen</li><li><b>d the diffusion of oxygen through the respiratory membranes into the blood, transportation to the cells, diffusion into the cells and elimination of carbon dioxide from the body</b></li></ul>	
112 id 86	Inhaling carbon monoxide can be extremely dangerous during flying. Which of the following statement(s) is/are correct?
<ul style="list-style-type: none"><li>a Carbon monoxide increases the oxygen saturation in the blood.</li><li><b>b Carbon monoxide is odourless and cannot be smelled.</b></li><li>c With increasing altitude the negative effects of carbon monoxide poisoning will be compensated.</li><li>d Small amounts of carbon monoxide are harmless.</li></ul>	
113 id 87	Carbon monoxide poisoning
<ul style="list-style-type: none"><li><b>a is more likely to occur in aeroplanes where the cabin heat is technically supplied by coating the exhaust</b></li><li>b is more likely to occur in aeroplanes with twin-engines because of high engine efficiency</li><li>c only occurs in jet-driven aeroplanes</li><li>d occurs only above 15 degrees OAT</li></ul>	

114 id 88	<p>In the following list you will find several symptoms listed for hypoxia and carbon monoxide poisoning. Please mark those referring to carbon monoxide poisoning.</p> <p><b>a Headache, increasing nausea, dizziness.</b></p> <p>b High levels of arousal, increased error proneness, lack of accuracy.</p> <p>c Euphoria, accommodation problems, blurred vision.</p> <p>d Muscular spasms, mental confusion, impairment of hearing.</p>
115 id 89	<p>Which of the following applies to carbon monoxide poisoning?</p> <p><b>a Several days are needed to recuperate from a carbon monoxide poisoning.</b></p> <p>b A very early symptom for realising carbon monoxide poisoning is euphoria.</p> <p>c The human body shows no sign of carbon monoxide poisoning.</p> <p>d Inhaling carbon monoxide leads to hyperventilation.</p>
116 id 90	<p>The momentum of gas exchange in respiration is</p> <p>a the excess pressure caused by inhaling</p> <p><b>b dependent on the pressure gradient between the participating gases during respiration</b></p> <p>c independent from the partial pressures of the participating gases</p> <p>d depending on the active transportation of nitrogen into the alveoli</p>
117 id 91	<p>Which component(s) is/are transporting the oxygen in the blood?</p> <p><b>a Hemoglobin in the red blood cells.</b></p> <p>b White blood cells.</p> <p>c Plasma.</p> <p>d Blood fat.</p>
118 id 92	<p>Affinity to hemoglobin is best with:</p> <p>a oxygen</p> <p>b nitrogen</p> <p><b>c carbon monoxide</b></p> <p>d carbon dioxide</p>
119 id 93	<p>Which of the following is true concerning carbon monoxide?</p> <p><b>a It is to be found in the smoke of cigarettes lifting up a smoker's "physiological altitude".</b></p> <p>b It combines 5 times faster to the hemoglobin than oxygen.</p> <p>c It has no physiological effect when mixed with oxygen.</p> <p>d It is always present in the lungs.</p>
120 id 95	<p>The rate and depth of breathing is primarily controlled by:</p> <p>a the total atmospheric pressure</p> <p>b the amount of carbon monoxide in the blood</p> <p>c the amount of nitrogen in the blood</p> <p><b>d the amount of carbon dioxide in the blood</b></p>

121 id 96	In the alveoli gas exchange takes place (external respiration). Which gas will diffuse from the blood into the lungs?
	<ul style="list-style-type: none"> <li>a Oxygen.</li> <li>b Ambient air.</li> <li>c <b>Carbon dioxide.</b></li> <li>d Carbon monoxide.</li> </ul>
122 id 97	Which statement is correct ?
	<ul style="list-style-type: none"> <li>a Oxygen diffusion from the lungs into the blood does not depend on partial oxygen pressure.</li> <li>b The blood plasma is transporting the oxygen.</li> <li>c The gradient of diffusion is higher at altitude than it is at sea-level.</li> <li>d <b>Oxygen diffusion from the blood into the cells depends on their partial oxygen pressure gradient.</b></li> </ul>
123 id 99	"Tunnel vision" (loss of peripheral vision) can be observed if a pilot is subjected to more than:
	<ul style="list-style-type: none"> <li>a + 3.5 Gx</li> <li>b - 3.5 Gz</li> <li>c <b>+ 3.5 Gz</b></li> <li>d - 3.5 Gy</li> </ul>
124 id 100	"Grey out" can be observed if a pilot is subjected to more than:
	<ul style="list-style-type: none"> <li>a + 3 Gy</li> <li>b - 3 Gz</li> <li>c + 3 Gx</li> <li>d <b>+ 3 Gz</b></li> </ul>
125 id 101	The negative (radial) acceleration of an airplane affects the sitting pilot with inertia along :
	<ul style="list-style-type: none"> <li>a the transverse body axis to the right</li> <li>b the vertical body axis downwards</li> <li>c <b>the vertical body axis upwards</b></li> <li>d the transverse body axis to the left</li> </ul>
126 id 102	How can a pilot increase his tolerance to +Gz ?
	<ul style="list-style-type: none"> <li>a Take an upright seat position.</li> <li>b Tighten shoulder harness.</li> <li>c <b>Tightening of muscles, ducking the head and perform a kind of pressure breathing.</b></li> <li>d Relax the muscles, ducking the head and lean upper body forward.</li> </ul>
127 id 103	Oxygen in the blood is primarily transported by
	<ul style="list-style-type: none"> <li>a the blood plasma</li> <li>b <b>the hemoglobin in the red blood cells</b></li> <li>c attaching itself to the hemoglobin in the red blood plasma</li> <li>d attaching itself to the hemoglobin in the white blood cells</li> </ul>

128 id 104	<p>Large amounts of carbon dioxide are eliminated from the body when hyperventilating. This causes the blood</p> <ul style="list-style-type: none"> <li>a to accelerate the oxygen supply to the brain</li> <li>b to turn more acid thus eliminating more oxygen from the hemoglobin</li> <li><b>c to become more alkaline increasing the amount of oxygen to be attached to the hemoglobin at lung area</b></li> <li>d not to change at all</li> </ul>
129 id 105	<p>Hypoxia is caused by</p> <ul style="list-style-type: none"> <li>a a higher affinity of the red blood cells (hemoglobin) to oxygen</li> <li>b reduced partial pressure of nitrogen in the lung</li> <li>c an increased number of red blood cells</li> <li><b>d reduced partial oxygen pressure in the lung</b></li> </ul>
130 id 106	<p>Hypoxia can be caused by: 1. low partial pressure of oxygen in the atmosphere when flying at high altitudes without pressurisation and supplemental oxygen 2. a decreased saturation of oxygen in the blood due to carbon monoxide attached to the hemoglobin 3. blood pooling in the lower extremities due to inertia (+ Gz) 4. malfunction of the body cells to metabolize oxygen (i.e. after a hangover)</p> <ul style="list-style-type: none"> <li>a 1 and 2 are correct, 3 and 4 are false</li> <li><b>b 1, 2, 3 and 4 are correct</b></li> <li>c 1 is false, 2, 3 and 4 are correct</li> <li>d 1, 2, 3 are correct, 4 is false</li> </ul>
131 id 107	<p>A pilot will get hypoxia</p> <ul style="list-style-type: none"> <li>a after decompression to 30 000 feet and taking 100 % oxygen via an oxygen mask</li> <li><b>b after decompression at high altitude and not taking additional oxygen in time</b></li> <li>c if his rate of climb exceeds 5 000 ft/min</li> <li>d if he is flying an unpressurized airplane at an altitude of 15 000 feet and breathing 100 % oxygen</li> </ul>
132 id 108	<p>Why is hypoxia especially dangerous for pilots flying solo?</p> <ul style="list-style-type: none"> <li>a The pilot may lose control when he is using the oxygen mask.</li> <li>b Hypoxia does not cause a loss of control in steering the plane.</li> <li>c Hypoxia improves vision at night, so the pilot will have no indication of danger.</li> <li><b>d Since the first signs of hypoxia are generally hard to detect (hypoxia of the brain), the solo pilot may not be able to react in time (i.e. activate his emergency oxygen system)</b></li> </ul>
133 id 109	<p>In the following list you find some symptoms for hypoxia and carbon monoxide poisoning. Please mark those indicating hypoxia:</p> <ul style="list-style-type: none"> <li>a Dizziness, hypothermia.</li> <li>b Nausea and barotitis.</li> <li>c Dull headache and bends.</li> <li><b>d Visual disturbances, lack of concentration, euphoria.</b></li> </ul>

<b>134</b> id 110	Which of the following is a/are symptom(s) of hypoxia ?
	<ul style="list-style-type: none"> <li>a Pain in the joints</li> <li><b>b Lack of concentration, fatigue, euphoria</b></li> <li>c Low blood pressure</li> <li>d Excessive rate and depth of breathing combined with pains in the chest area</li> </ul>
<b>135</b> id 111	A symptom comparison for hypoxia and hyperventilation is:
	<ul style="list-style-type: none"> <li>a symptoms caused by hyperventilation will immediately vanish when 100% oxygen is given</li> <li>b there are great differences between the two</li> <li>c altitude hypoxia is very unlikely at cabin pressure altitudes above 10 000 ft</li> <li><b>d cyanosis (blue color of finger-nail and lips) exists only in hypoxia</b></li> </ul>
<b>136</b> id 112	Which statement applies to hypoxia?
	<ul style="list-style-type: none"> <li>a you may become immune to hypoxia when exposed repeatedly to hypoxia</li> <li>b carbon monoxide increases the tolerance of the brain to oxygen deficiency</li> <li><b>c sensitivity and reaction to hypoxia varies from person to person</b></li> <li>d it is possible to prognose when, how and where hypoxia reaction starts to set in</li> </ul>
<b>137</b> id 113	Hypoxia can also be caused by
	<ul style="list-style-type: none"> <li>a too much carbon dioxide in the blood</li> <li>b a lack of nitrogen in ambient air</li> <li><b>c a lack of red blood cells in the blood or decreased ability of the hemoglobin to transport oxygen</b></li> <li>d increasing oxygen partial pressure used for the exchange of gases</li> </ul>
<b>138</b> id 114	Which symptom of hypoxia is the most dangerous for conducting safe flight ?
	<ul style="list-style-type: none"> <li>a Dizziness.</li> <li><b>b The interference of reasoning and perceptive functions.</b></li> <li>c Lack of adaptation.</li> <li>d Lack of accommodation.</li> </ul>
<b>139</b> id 115	A pilot, climbing in a non-pressurised aircraft and without using supplemental oxygen will pass the "critical threshold" at approximately:
	<ul style="list-style-type: none"> <li>a 38 000 ft</li> <li>b 16 000 ft</li> <li>c 18 000 ft</li> <li><b>d 22 000 ft</b></li> </ul>
<b>140</b> id 116	Breathing 100% will lift the pilot's physiological safe altitude to approximately:
	<ul style="list-style-type: none"> <li><b>a 38 000 ft</b></li> <li>b 10 000</li> <li>c 22 000 ft</li> <li>d 45 000 ft</li> </ul>

141 id 117	<p>The most dangerous symptoms of hypoxia at altitude are</p> <p>a breathlessness and reduced night vision</p> <p>b hyperventilation</p> <p>c sensation of heat and blurred vision</p> <p><b>d euphoria and impairment of judgement</b></p>
142 id 118	<p>When consciously breathing fast or hyperventilating due to high arousal or overstress, the carbon dioxide level in the blood is lowered, resulting in:</p> <p>a a poor saturation of oxygen in the blood</p> <p><b>b less oxygen to be diffused into the cells</b></p> <p>c a delay in the onset of hypoxia when flying at high altitudes</p> <p>d the activation of the respiratory centre, which in turn causes hypoxia</p>
143 id 119	<p>With hyperventilation, caused by high levels of arousal or overstress:</p> <p>a more oxygen will reach the brain</p> <p>b finger nails and lips will turn blue ("cyanosis")</p> <p><b>c an increased amount of carbon dioxide is exhaled causing muscular spasms and even unconsciousness</b></p> <p>d peripheral and scotopic vision will be improved</p>
144 id 345	<p>Which of the following symptoms can mark a beginning hyperventilation?</p> <p>a Slow rate of breathing</p> <p>b Slow heart beat</p> <p><b>c Dizzy feeling</b></p> <p>d Cyanosis (blueing of lips and finger nails)</p>
145 id 346	<p>Out of the list of possible measures to counteract hyperventilation, the most effective measure against hyperventilation tetany is:</p> <p>a hold breath</p> <p><b>b breathe into a plastic or paper bag</b></p> <p>c avoid strenuous flight manoeuvres</p> <p>d speak soothingly and get the person to breathe slowly</p>
146 id 347	<p>What event can cause a hyperventilation (not required by physical need)? 1. Pressure breathing. 2. Anxiety or fear. 3. Overstress. 4. Strong pain. 5. Jogging.</p> <p>a Only 2 and 3 are correct</p> <p><b>b 1,2,3 and 4 are correct, 5 is false</b></p> <p>c 1,2,3,4 and 5 are correct</p> <p>d 1 and 5 are both false</p>
147 id 348	<p>Which of the following could a pilot experience when he is hyperventilating? 1. Dizziness 2. Muscular spasms 3. Visual disturbances 4. Cyanosis</p> <p><b>a 1,2 and 3 are correct, 4 is false</b></p> <p>b 1,2 and 4 are correct, 3 is false</p> <p>c 1 is false, all others are correct</p> <p>d 2 and 4 are false</p>

<b>148</b> id 349	A good method to treat hyperventilation is to:
	<ul style="list-style-type: none"> <li>a don an oxygen mask</li> <li><b>b talk oneself through the relevant procedure aloud to emotionally calm down and reduce the rate of breathing simultaneously</b></li> <li>c excecute the valsalva manoeuvre</li> <li>d close the eyes and relax</li> </ul>
<b>149</b> id 350	What could cause hyperventilation ?
	<ul style="list-style-type: none"> <li>a Extreme low rate of breathing</li> <li>b Abuse of alcohol</li> <li><b>c Fear, anxiety and distress</b></li> <li>d Fatigue</li> </ul>
<b>150</b> id 351	A pilot who is hyperventilating for a prolonged period of time may even get unconscious. Hyperventilation is likely to occur, when:
	<ul style="list-style-type: none"> <li>a there is an increased blood flow to the brain</li> <li>b there is a low CO-pressure in the blood</li> <li>c he is flying a tight turn</li> <li><b>d the pilot is emotionally aroused</b></li> </ul>
<b>151</b> id 352	Hyperventilation can cause unconsciousness, because:
	<ul style="list-style-type: none"> <li>a oxygen saturation of the blood is increased and the brain will be supplied with more blood than normal</li> <li>b oxygen saturation of the blood is decreased</li> <li>c not enough time is left to exchange oxygen in the lungs</li> <li><b>d blood circulation to the brain is slowed down</b></li> </ul>
<b>152</b> id 353	At what altitude ("threshold for compensatory reactions") does the human organism start with remarkable measures to compensate for the drop in pO <sub>2</sub> when climbing? At about:
	<ul style="list-style-type: none"> <li>a 8000-9000 FT</li> <li><b>b 6000-7000 FT</b></li> <li>c 9000-10000 FT</li> <li>d 10000-12000 FT</li> </ul>
<b>153</b> id 354	Where is the "critical threshold" at which a pilot not using oxygen reaches the critical or lethal zone? It starts at:
	<ul style="list-style-type: none"> <li>a 18000 FT</li> <li><b>b 22000 FT.</b></li> <li>c 125000 FT</li> <li>d 138000 FT</li> </ul>
<b>154</b> id 355	Short term memory can already be affected when flying as low as:
	<ul style="list-style-type: none"> <li>a 12000 FT</li> <li><b>b 8000 FT</b></li> <li>c 15000 FT</li> <li>d 20000 FT</li> </ul>



155 id 356	Breathing pure oxygen (without pressure) will be sufficient up to an altitude of:
a	80000 FT
b	45000 FT
c	60000 FT
d	<b>38000 FT</b>
156 id 357	TUC (Time of Useful Consciousness) is:
a	the time between the start of hypoxia and death
b	the time before becoming unconscious at a sudden pressure loss
c	the time after pressure loss until decompression sickness sets in
d	<b>the length of time during which an individual can act with both mental and physical efficiency and alertness; measured from the moment at which he is exposed to hypoxia</b>
157 id 358	The "Effective Performance Time" or "Time of Useful Consciousness" after a decompression at 35 000 ft is:
a	approximately 3 minutes
b	<b>between 30 and 60 seconds</b>
c	approximately 5 minutes
d	less than 20 seconds
158 id 359	The time between inadequate oxygen supply and incapacitation is called TUC (Time of Useful Consciousness). It
a	varies individually and does not depend on altitude
b	is the same amount of time for every person
c	is not dependent on physical or psychological pressure
d	<b>varies individually and depends on cabin pressure altitude</b>
159 id 360	After a decompression to 43 000 FT the TUC (Time of Useful Consciousness) will be approximately:
a	60-90 seconds
b	30-45 seconds
c	45-60 seconds
d	<b>5-15 seconds</b>
160 id 361	Flights immediately after SCUBA-diving (compressed gas mixtures, bottles) (>10 m depth)
a	should be avoided because hypoxia may develop
b	can be performed without any danger
c	are allowed, if 38000 FT are not exceeded
d	<b>are forbidden</b>
161 id 362	Pain in the Joints ("bends"), which suddenly appear during a flight , are symptoms of
a	<b>decompression sickness</b>
b	barotrauma
c	air-sickness
d	hypoxia

162 id 363	After a cabin pressure loss in approximately 35 000 FT the TUC (Time of Useful Consciousness) will be approximately:
	<ul style="list-style-type: none"> <li>a 10-15 seconds</li> <li><b>b 30 -90 seconds</b></li> <li>c 3-4 minutes</li> <li>d 5 minutes or more</li> </ul>
163 id 364	You suffered a rapid decompression without the appearance of any decompression sickness symptoms. How long should you wait until your next flight?
	<ul style="list-style-type: none"> <li>a 36 hours</li> <li>b 24 hours</li> <li><b>c 12 hours</b></li> <li>d 48 hours</li> </ul>
164 id 365	Flying immediately following a dive with SCUBA diving equipment (> 10 m depth)
	<ul style="list-style-type: none"> <li>a prevents any dangers caused by aeroembolism (decompression sickness) when climbing to altitudes not exceeding 30 000 FT</li> <li><b>b can cause decompression sicknesss even when flying at pressure altitudes below 18 000 FT</b></li> <li>c has no influence on altitude flights</li> <li>d is forbidden for the flight crew, because it leads to hypoxia</li> </ul>
165 id 366	After a decompression at high altitude
	<ul style="list-style-type: none"> <li>a pressure differentials will suck air into the cabin</li> <li>b automatically oxygen is deployed into the cabin</li> <li>c temperature in the cockpit will increase</li> <li><b>d nitrogen gas bubbles can be released in the body fluids causing gas embolism, bends and chokes</b></li> </ul>
166 id 367	In airline operations decompression sickness symptoms
	<ul style="list-style-type: none"> <li>a may develop when being decompressed from MSL to 15 000 FT</li> <li><b>b may develop after a decompression from 7000 FT cabin pressure altitude to 30000 FT flight altitude</b></li> <li>c appear only in air crew, previously engaged in diving activities</li> <li>d may affect people with defect tympanic membrane</li> </ul>
167 id 368	Symptoms of decompression sickness
	<ul style="list-style-type: none"> <li>a can only develop at altitudes of more than 40000 FT</li> <li>b are only relevant when diving</li> <li><b>c are bends, chokes, skin manifestations, neurological symptoms and circulatory shock</b></li> <li>d are flatulence and pain in the middle ear</li> </ul>
168 id 405	Decompression sickness symptoms may develop due to
	<ul style="list-style-type: none"> <li><b>a cabin pressure loss when flying at higher altitudes (above 18000 FT)</b></li> <li>b sudden pressure surges in the cabin at altitudes below 18000 FT</li> <li>c emergency descents after a cabin pressure loss</li> <li>d fast flights from a high-pressure zone into a low pressure area when flying an unpressurized aeroplane</li> </ul>

<b>169</b> id 406	The eustachian tube serves for the pressure equalization between <b>a middle ear and external atmosphere</b> b sinuses of the nose and external atmosphere c nose and pharyngeal cavity and external atmosphere d frontal, nose and maxillary sinuses
<b>170</b> id 407	Disturbances of pressure equalization in air-filled cavities of the head (nose, ear etc.) are called: <b>a barotrauma</b> b ebulism c hypoxia d hyperventilation
<b>171</b> id 408	Barotrauma caused by gas accumulation in the stomach and intestinals can lead to: a decompression sickness b barotitis <b>c pressure pain or flatulence</b> d barosinusitis
<b>172</b> id 409	What counter-measure can be used against a barotrauma of the middle ear (aerotitis)? a Stop climbing, start descent b Increase rate of descent <b>c Close the mouth, pinch the nose tight and blow out thereby increasing the pressure in the mouth and throat. At the same time try to swallow or move lower jaw (Valsalva)</b> d Pilots should apply anti-cold remedies prior every flight to prevent barotrauma in the middle ear
<b>173</b> id 410	How can you determine if a person is suffering from a barotrauma of the sinuses of the nose (aerosinusitis) or the middle ear (aerotitis) ? a Barotrauma of the middle ear will not effect hearing b Aerosinusitis will never develop during descent <b>c Hearing difficulties will normally accompany aerotitis</b> d There is no difference
<b>174</b> id 411	Barotrauma of the sinuses of the nose (aerosinusitis) a is only caused by the flying sport, not by the diving sport <b>b is caused by a difference in pressure existing between the sinus cavity and the ambient air</b> c is an irritation of sinuses by abuse of nose sprays d is only caused by colds and their effects
<b>175</b> id 412	Barodontalgia a arises in combination with a cold and very high rates of descent b arises only at higher altitudes and after decompression c even arises with healthy teeth <b>d arises especially with irritations of the sensitive tissues close to the root of a tooth</b>

176 id 413	At a high altitude flight (no cabin pressure system available), a pilot gets severe flatulence due to trapped gases. The correct counter-measure is:
	<ul style="list-style-type: none"> <li>a perform "Valsalva manoeuvre"</li> <li>b climb to a higher altitude</li> <li><b>c descend to lower altitude</b></li> <li>d use supplemental oxygen</li> </ul>
177 id 414	A barotrauma of the middle ear (aerotitis)
	<ul style="list-style-type: none"> <li>a causes severe pain in the sinuses</li> <li>b is only caused by large pressure changes during climb</li> <li><b>c is more likely, when the pilot is flying with a respiratory infection and during descent</b></li> <li>d is to be expected during rapid decompressions, but an emergency descent immediately following the decompression will eliminate the problem</li> </ul>
178 id 415	Trapped intestinal gases can cause severe pain. When is this the case?
	<ul style="list-style-type: none"> <li>a At lower altitudes.</li> <li><b>b More frequent when flying above 18 000 FT in a non-pressurized aircraft.</b></li> <li>c Only in pressurized aircraft when flying at higher flight levels.</li> <li>d During descent as well as during climb, when the cabin pressure altitude is exceeding 2 000 FT</li> </ul>
179 id 416	Please mark the counter-measure a pilot can use against a barotrauma of the middle ear (aerotitis).
	<ul style="list-style-type: none"> <li>a Stop chewing and swallowing movements ("Valsalva")</li> <li>b Increase the rate of descent</li> <li><b>c Stop descending, climb again and then descend with reduced sink rate</b></li> <li>d Use drugs against a cold</li> </ul>
180 id 417	Barotrauma of the middle ear most likely will occur
	<ul style="list-style-type: none"> <li><b>a when descending rapidly</b></li> <li>b during a long high altitude flight</li> <li>c when climbing</li> <li>d in sudden steep turns</li> </ul>
181 id 418	Barotrauma of the middle ear is usually accompanied by
	<ul style="list-style-type: none"> <li>a noises in the ear</li> <li>b dizziness</li> <li><b>c a reduction in hearing ability and the feeling of increasing pressure</b></li> <li>d pain in the joints</li> </ul>
182 id 419	The risk of a barotrauma of the middle ear is more likely to occur
	<ul style="list-style-type: none"> <li>a with colds and slow ascents</li> <li>b with colds and fast climbs</li> <li><b>c with colds and rapid descents</b></li> <li>d after a decompression</li> </ul>

<b>183</b> id 421	Equalization of pressure is limited between the middle ear and the ambient, when:
	<ul style="list-style-type: none"> <li>a barotrauma exists in the sinuses</li> <li>b the nose is pinched</li> <li>c you breath through the mouth</li> <li><b>d the eustachian tube is blocked</b></li> </ul>
<b>184</b> id 422	A barotrauma of the middle ear is
	<ul style="list-style-type: none"> <li>a a bacterial infection of the middle ear</li> <li><b>b an acute or chronic trauma of the middle ear caused by a difference of pressure on either side of the eardrum</b></li> <li>c a dilatation of the eustachian tube</li> <li>d an infection of the middle ear caused by rapid decompression</li> </ul>
<b>185</b> id 462	The effect of hypoxia to vision
	<ul style="list-style-type: none"> <li>a can only be detected when smoking tobacco</li> <li>b is usual stronger with the cones</li> <li><b>c is stronger with the rods</b></li> <li>d does not depend on the level of illumination</li> </ul>
<b>186</b> id 467	When oxygen is beeing transferred from the blood into the tissues and carbon dioxide from the body cells into the blood, it is called:
	<ul style="list-style-type: none"> <li>a ventilation</li> <li>b external respiration</li> <li><b>c internal respiration</b></li> <li>d hyperventilation</li> </ul>
<b>187</b> id 470	The eustachian tube is the passage way between the
	<ul style="list-style-type: none"> <li>a sinuses and the pharynx</li> <li>b nose, pharynx and inner ear</li> <li>c nose, pharynx and the external auditory canal</li> <li><b>d nasopharynx and the middle ear</b></li> </ul>
<b>188</b> id 473	Which part of the ear could be affected due to air pressure changes during climb and/or descent?
	<ul style="list-style-type: none"> <li>a The cochlea</li> <li>b The semicircular canals</li> <li><b>c The eustachian tube and the tympanic membrane (ear drum)</b></li> <li>d The sacculus and utriculus</li> </ul>
<b>189</b> id 480	Through which part of the ear does the equalization of pressure take place, when altitude is changed?
	<ul style="list-style-type: none"> <li>a Cochlea</li> <li><b>b Eustachian tube</b></li> <li>c Tympanic membrane</li> <li>d External auditory canal</li> </ul>

<b>190</b> id 503	Hypoxia effects visual performance. A pilot may:
	<ul style="list-style-type: none"> <li><b>a get blurred and/or tunnel vision</b></li> <li>b have a reduction of 25% in visual acuity at 8000 FT AGL</li> <li>c be unable to maintain piercing vision below 5000 FT AGL</li> <li>d get colour blindness accompanied by severe headache</li> </ul>
<b>191</b> id 508	Which of the following symptoms could a pilot get, when he is subjected to hypoxia? 1. Fatigue. 2. Euphoria. 3. Lack of concentration. 4. Pain in the joints. 5. Sensation of suffocation.
	<ul style="list-style-type: none"> <li>a 1, 2, 3 and 4 are correct</li> <li>b 4 and 5 are correct</li> <li><b>c 1, 2 and 3 are correct</b></li> <li>d Only 5 is false</li> </ul>
<b>192</b> id 1647	The type of hypoxia, which occurs at altitude is explained by:
	<ul style="list-style-type: none"> <li><b>a Dalton's law</b></li> <li>b Boyle Mariotte's law</li> <li>c Henry's law</li> <li>d Graham's law</li> </ul>
<b>193</b> id 1648	Gaseous exchange in the human body depends on: 1. diffusion gradients between the participating gases 2. permeable membranes 3. partial pressure of oxygen in the alveolus air 4. acid-base balance in the blood
	<ul style="list-style-type: none"> <li>a 1, 2 and 3 are correct, 4 is false</li> <li><b>b 1, 2, 3 and 4 are correct</b></li> <li>c 2 and 3 are false</li> <li>d only 1 is correct</li> </ul>
<b>194</b> id 1650	Hyperventilation causes
	<ul style="list-style-type: none"> <li>a acidosis</li> <li>b an excess of carbon dioxide in the blood</li> <li><b>c a lack of carbon dioxide in the blood</b></li> <li>d hypochondria</li> </ul>
<b>195</b> id 1651	Anxiety and fear can cause
	<ul style="list-style-type: none"> <li>a spatial disorientation</li> <li>b hypoxia</li> <li><b>c hyperventilation</b></li> <li>d hypoglycemia</li> </ul>
<b>196</b> id 1652	Symptoms of decompression sickness
	<ul style="list-style-type: none"> <li>a always begin immediately after the decompression during the flight</li> <li><b>b sometimes can appear with a delay after the airplane is on the ground</b></li> <li>c normally take 2 or 3 days to appear after exposure to a hypobaric atmosphere</li> <li>d disappear on landing and never appear again</li> </ul>

<b>197</b> id 1653	The first effect to be noticed on gradual exposure to high positive radial accelerations is
	<ul style="list-style-type: none"> <li>a loss of consciousness</li> <li><b>b grey-out</b></li> <li>c black-out</li> <li>d red-vision</li> </ul>
<b>198</b> id 1680	Decompression sickness occurs in association with exposure to reduced atmospheric pressure. The evolution of bubbles of nitrogen coming out of solution in body tissues can be derived from:
	<ul style="list-style-type: none"> <li>a Dalton's law</li> <li>b Boyle Mariotte's law</li> <li><b>c Henry's law</b></li> <li>d Gay Lussac's law</li> </ul>
<b>199</b> id 1681	The normal rate of breathing is
	<ul style="list-style-type: none"> <li>a 60 to 100 cycles a minute</li> <li><b>b 12 to 16 cycles a minute</b></li> <li>c 32 to 40 cycles a minute</li> <li>d 20 to 30 cycles a minute</li> </ul>
<b>200</b> id 1682	The main function of the red blood cells is
	<ul style="list-style-type: none"> <li>a the cellular defense of the organism</li> <li>b to participate in the process of coagulation of the blood</li> <li><b>c to transport oxygen</b></li> <li>d to contribute to the immune response of the organism</li> </ul>
<b>201</b> id 1683	Altitude-hypoxia, when breathing ambient air, should not occur (indifferent phase)
	<ul style="list-style-type: none"> <li>a between 5 000 m and 7 000 m</li> <li>b up to 5 000 m</li> <li>c between 3 000 m and 5 000 m</li> <li><b>d below 3 000 m</b></li> </ul>
<b>202</b> id 1684	"The Bends" as a symptom of decompression sickness consists of:
	<ul style="list-style-type: none"> <li><b>a pain in the joints</b></li> <li>b pain in the thorax and a backing cough</li> <li>c CNS-disturbances</li> <li>d loss of peripheral vision</li> </ul>
<b>203</b> id 1685	One of the most frequent symptom(s) of decompression sickness emerging after a decompression in airline operation
	<ul style="list-style-type: none"> <li>a are the chokes</li> <li><b>b are the bends</b></li> <li>c is a shock</li> <li>d are neurological damages to the CNS</li> </ul>

204 id 1776	In relation to hypoxia, which of the following paraphrase(s) is (are) correct?
a	This is a physical condition caused by a lack of oxygen saturation in the blood while hyperventilating.
b	This is a condition of lacking oxygen in the brain causing the circulatory system to compensate by decreasing the heart rate.
c	Hypoxia is often produced during steep turns when pilots turn their heads in a direction opposite to the direction in which the aircraft is turning
d	<b>This is a physical condition caused by a lack of oxygen to meet the needs of the body tissues, leading to mental and muscular disturbances, causing impaired thinking, poor judgement and slow reactions</b>
205 id 1777	Hyperventilation is due to an excessive rate of breathing and can produce the following symptoms:
a	<b>dizziness, tingling sensation in the fingers and toes, nausea and blurred vision</b>
b	reduced heart rate and increase in visual acuity
c	a state of overconfidence and reduced heart rate
d	blue finger-nails and lips
206 id 1778	In order to get rid of excess nitrogen following scuba diving, subsequent flights should be delayed
a	3 hours after non decompression diving
b	<b>24 hours</b>
c	36 hours after any scuba diving
d	48 hours after a continuous ascent in the water has been made
207 id 2157	The cabin pressure in airline operation is
a	always equivalent to sea level
b	normally not exceeding 2 000 to 3 000 feet
c	normally not exceeding 4 000 to 5 000 feet
d	<b>normally not exceeding 6 000 to 8 000 feet</b>
208 id 2741	Someone who has anaemia has:
a	not enough white blood cells
b	not enough platelets
c	not enough plasma
d	<b>not enough functional hemoglobin</b>
209 id 2742	The average pulse of a healthy adult in rest is about:
a	30 to 50 beats/min
b	<b>60 to 80 beats/min</b>
c	90 to 100 beats/min
d	110 to 150 beats/min
210 id 2743	Pulse rate is influenced by the following factors: 1. Adrenalin 2. Cortisol 3. Physical exercise. 4. Glucose concentration in the blood
a	1,2 and 4 are correct, 3 is false
b	1,2,3 and 4 are correct
c	2,3 and 4 are correct, 1 is false
d	<b>1,3 and 4 are correct, 2 is false</b>



<b>211</b> id 2874	The partial pressure of carbon dioxide in the alveoli is:
	<ul style="list-style-type: none"> <li><b>a lower than in the blood</b></li> <li>b almost the same as in the atmospheric air</li> <li>c higher than the pressure of carbon dioxide in the blood</li> <li>d lower than the pressure of carbon dioxide in the atmospheric air.</li> </ul>
<b>212</b> id 2876	The symptoms of hyperventilation are caused by a:
	<ul style="list-style-type: none"> <li>a surplus of CO<sub>2</sub> in the blood</li> <li>b surplus of O<sub>2</sub> in the blood</li> <li>c shortage of CO in the blood</li> <li><b>d shortage of CO<sub>2</sub> in the blood</b></li> </ul>
<b>213</b> id 2877	A pressurized cabin helps to prevent: 1. decompression sickness 2 .the problem of expansion of gases in the intestines 3. hypoxia 4. coronary disease
	<ul style="list-style-type: none"> <li>a 1, 3 and 4 are correct.</li> <li>b 1, 2 and 4 are correct.</li> <li>c 2, 3 and 4 are correct.</li> <li><b>d 1, 2 and 3 are correct.</b></li> </ul>
<b>214</b> id 2878	Healthy people are usually capable to compensate for a lack of oxygen up to
	<ul style="list-style-type: none"> <li>a 15.000 feet</li> <li><b>b 10.000 - 12.000feet</b></li> <li>c 20.000 feet</li> <li>d 25.000 feet</li> </ul>
<b>215</b> id 2879	When flying above 10.000 feet hypoxia arises because:
	<ul style="list-style-type: none"> <li>a the composition of the air is different from sea level</li> <li>b the composition of the blood changes</li> <li><b>c the partial oxygen pressure is lower than at sea level.</b></li> <li>d the percentage of oxygen is lower than at sea level</li> </ul>
<b>216</b> id 2880	Saturation of oxygen in the blood at sea level is 98%. This saturation decreases with: 1. decreasing air pressure 2. carbon monoxide poisoning 3. increasing altitude 4. increasing air pressure
	<ul style="list-style-type: none"> <li>a 2, 3 and 4 are correct, 1 is false</li> <li>b 1, 2 and 4 are correct, 3 is false</li> <li><b>c 1, 2 and 3 are correct, 4 is false</b></li> <li>d 1, 3 and 4 are correct, 2 is false</li> </ul>
<b>217</b> id 2881	Hypoxia is a situation in which the cells
	<ul style="list-style-type: none"> <li><b>a have a shortage of oxygen</b></li> <li>b are saturated with nitrogen</li> <li>c are saturated with oxygen</li> <li>d have a shortage of carbon dioxide</li> </ul>

218 id 2882	<p>The severity of hypoxia depends on the: 1. rate of decompression 2. physical fitness 3. flight level 4. individual tolerance</p> <p>a 1 and 3 are correct, 2 and 4 are false</p> <p>b 1,2 and 3 are correct, 4 is false</p> <p>c 2,3 and 4 are correct, 1 is false</p> <p><b>d 1,2,3 and 4 are correct</b></p>
219 id 2883	<p>Which of the following statements concerning hypoxia is correct?</p> <p>a It has little effect on the body, because the body can always compensate for it.</p> <p>b It is never a problem at altitudes below 25.000 ft.</p> <p>c It activates the senses and makes them function better.</p> <p><b>d It is a potential threat to safety.</b></p>
220 id 3640	<p>Which of the following statements concerning barotrauma are correct? They are:</p> <p>a more likely to occur during ascent than during a rapid descent</p> <p>b caused by an increase in the partial pressure of oxygen associated with a decrease in altitude</p> <p><b>c due to pressure differentials between gases in hollow cavities of the body and the ambient pressure</b></p> <p>d mainly associated with a sink rate which exceeds the ability of the body to balance its internal pressures</p>
221 id 3641	<p>Decompression sickness may occur as from : - 1: an altitude of more than 18,000 ft - 2 : an altitude of more than 5,500 ft - 3 : a rate of climb of more than 500 ft/min exceeding 18,000 ft - 4 : a temperature of more than 24°C</p> <p><b>a 1,3</b></p> <p>b 2,3</p> <p>c 1,3,4</p> <p>d 2,4</p>
222 id 3642	<p>With regard to decompression sickness associated with flight, we know that :</p> <p>a sex is the prime risk factor, with two out of every three women being sensitive to it</p> <p>b scuba diving does not pose any problem for a subsequent flight</p> <p><b>c age, obesity and scuba diving are risk factors</b></p> <p>d physical activity after decompression reduces the risks of decompression sickness symptoms to appear</p>
223 id 3643	<p>The procedure to be followed in the event of decompression when flying above 10,000 ft must :</p> <p>a make it possible to prevent hyperventilation owing to the inhalation of 100 % oxygen</p> <p>b allow for a rapid descent independent from sufficient supply of oxygen in order to prevent disorders due to hypoxia</p> <p><b>c allow for the rapid supply of oxygen in order to prevent the pilot becoming hypoxic</b></p> <p>d make it possible to eliminate the risk of fogging due to the sudden pressure changes</p>
224 id 3644	<p>What is the "Time of Useful Consciousness" for a rapid decompression at 25,000 ft ?</p> <p>a About 30 seconds</p> <p>b About 18 seconds</p> <p>c Between 25 seconds and 1 minute 30 seconds</p> <p><b>d Between 3 and 5 minutes depending on the physical activities of the subjected pilot</b></p>

225 id 3645	<p>The Time of Useful Consciousness may vary according to : 1 : physical activity of the subjected crew 2 : the experience of the pilot on the type of aircraft in question 3 : the strength and time of decompression 4 : the cabin temperature</p> <p>a 1,3</p> <p>b 1,2</p> <p>c 3,4</p> <p>d 4</p>
226 id 3646	<p>During a climb, we can observe the following with regard to the partial oxygen pressure :</p> <p>a an increase which is inversely proportional to the decrease in atmospheric pressure</p> <p>b a decrease which is three times faster than the decrease in atmospheric pressure</p> <p>c an increase up to 10,000 ft followed by a sudden pressure drop above that altitude</p> <p>d <b>an identical decrease to that for atmospheric pressure</b></p>
227 id 3647	<p>The following may occur during gradual depressurisation between 12,000 and 18,000 ft :</p> <p>a sudden visual hyperacuity associated with headache</p> <p>b a rapid decrease in blood pressure which will lead to headache and also to a loss of coordination</p> <p>c <b>a loss of coordination associated with fatigue and headache</b></p> <p>d a rapid decrease in blood pressure leading to considerable somnolence</p>
228 id 3654	<p>What is the main problem caused by positive (+Gz) accelerations?</p> <p>a An increase in blood pressure in the upper part of the body (above heart-level)</p> <p>b An improvement of peripheral vision</p> <p>c <b>A pooling of blood in the lower portions of the body, and hence less blood available</b></p> <p>d Hyperoxygenation of the blood which may lead to sensory disorders</p>
229 id 3655	<p>What type of acceleration has the most significant physiological effect upon the pilot?</p> <p>a Transverse acceleration (+ Gy)</p> <p>b Linear acceleration (+ Gx)</p> <p>c <b>Radial acceleration (+ Gz)</b></p> <p>d Combined linear and transverse acceleration</p>
230 id 3657	<p>Incapacitation caused by barotrauma from gaseous expansion after decompression at high altitude may be associated with the following part(s) of the body: 1 the digestive tract 2 the ears 3 the eyes 4 the sinuses</p> <p>a 1,2,3</p> <p>b 1</p> <p>c 2,3,4</p> <p>d 2,4</p>
231 id 3659	<p>Of the following alternatives, which objective effects are due to positive acceleration (+ Gz)? - 1: Decrease in heart rate - 2: Pooling of blood into lower parts of the body - 3: Drop in blood pressure above heart-level - 4: Downward displacement or deformation of soft or mobile organs</p> <p>a 1,2,3</p> <p>b <b>2,3,4</b></p> <p>c 1</p> <p>d 1,3,4</p>

<b>232</b> id 3660	What is hypoxia ?
	<ul style="list-style-type: none"> <li>a A state characterised by an excessive supply of oxygen which may be due to maladjustment of the mask</li> <li>b The total absence of oxygen in the air</li> <li>c The respiratory symptom associated with altitude decompression sickness</li> <li><b>d Any condition where the oxygen concentration of the body is below normal limits or where the oxygen available to the body cannot be used due to some pathological condition</b></li> </ul>
<b>233</b> id 3663	What could be symptoms of hypoxia (when flying without oxygen) above 12,000 ft?
	<ul style="list-style-type: none"> <li>a Headache, thirst, somnolence, collapse</li> <li><b>b Headache, fatigue, dizziness, lack of coordination</b></li> <li>c Euphoria, headache, improvement in judgement, loss of consciousness</li> <li>d Trembling, increase in body temperature, convulsions, slowing of the rate of breathing</li> </ul>
<b>234</b> id 3672	What is the procedure above 10,000 ft altitude when faced with explosive decompression?
	<ul style="list-style-type: none"> <li><b>a Don an oxygen mask and descend to below 10,000 ft</b></li> <li>b First inform ATC</li> <li>c Descend to below 10,000 ft and signal an emergency</li> <li>d Check the cabin altitude, don an oxygen mask and maintain level flight</li> </ul>
<b>235</b> id 3673	What is the average Time of Useful Consciousness after a rapid decompression at 40,000 ft ?
	<ul style="list-style-type: none"> <li><b>a About 12 seconds</b></li> <li>b Between 20 seconds and 1 minute</li> <li>c About 40 seconds</li> <li>d More than 1 minute</li> </ul>
<b>236</b> id 3674	What is the Time of Useful Consciousness ?
	<ul style="list-style-type: none"> <li>a The pilot's reaction time when faced with hypoxia</li> <li>b The time taken to become aware of hypoxia due to gradual decompression</li> <li><b>c The length of time during which an individual can act with both mental and physical efficiency and alertness, measured from the moment at which he loses his available oxygen supply</b></li> <li>d The period of time between the start of hypoxia and the moment that the pilot becomes aware of it</li> </ul>
<b>237</b> id 3675	What are the main clinical signs of hypoxia during explosive decompression ?
	<ul style="list-style-type: none"> <li>a Headaches, fatigue, somnolence, palpitations</li> <li><b>b Increase in heart and respiratory rates, euphoria, impairment of judgement, memory disorders</b></li> <li>c Increase in heart rate, decrease in body temperature impairment of judgement</li> <li>d Headaches, articular pain, speeding-up of the respiratory rate, memory disorders</li> </ul>
<b>238</b> id 3676	Which is the procedure to be followed when symptoms of decompression sickness occur?
	<ul style="list-style-type: none"> <li>a Descend to the lowest possible level and wait for the symptoms to disappear before climbing again</li> <li><b>b Descend to the lowest possible level and land as soon as possible</b></li> <li>c Only medical treatment is of use</li> <li>d Only the prompt supply of oxygen is necessary</li> </ul>

<b>239</b> id 3677	What is decompression sickness ?
	<ul style="list-style-type: none"> <li>a The formation of air bubbles in bodily tissues, with no consequences for people's capabilities</li> <li>b A frequent disorder in commercial aviation due to the pressurisation curve of modern aircraft</li> <li>c A disorder which is solely encountered below 18,000 ft</li> <li><b>d An sickness resulting from the formation of nitrogen bubbles in bodily tissues and fluids after a cabin pressure loss at high altitude</b></li> </ul>
<b>240</b> id 3678	Which of the following statements are correct: -1: Scuba diving may be practiced without restriction -2: Many medicines have effects which are incompatible with flight safety -3: An adequate amount of fluid should be drunk when flying -4: Diet has no repercussion on health
	<ul style="list-style-type: none"> <li><b>a 2 and 3 are correct</b></li> <li>b 1, 2 and 3 are correct</li> <li>c 2, 3 and 4 are correct</li> <li>d 1, 3 and 4 are correct</li> </ul>
<b>241</b> id 3686	You climb from 0 to 50.000 ft and measure the decrease of the pressure per 5.000 ft. The absolute difference in barometric pressure is greatest between :
	<ul style="list-style-type: none"> <li>a 10.000 and 15.000 feet</li> <li>b 5.000 and 10.000 feet</li> <li><b>c 0 and 5.000 feet</b></li> <li>d 45.000 and 50.000 feet</li> </ul>
<b>242</b> id 3687	Physiological problems due to increasing altitude are caused by :
	<ul style="list-style-type: none"> <li>a accelerations</li> <li>b disorientation</li> <li><b>c decreased atmospherical pressure</b></li> <li>d increased atmospherical pressure</li> </ul>
<b>243</b> id 3689	Air at an altitude of 18.000 feet contains, approximately :
	<ul style="list-style-type: none"> <li>a 10% oxygen</li> <li>b 5% oxygen</li> <li>c 15% oxygen</li> <li><b>d 21% oxygen</b></li> </ul>
<b>244</b> id 3690	Dry air is a mixture of gases. Their volume percentage is about:
	<ul style="list-style-type: none"> <li>a 18% oxygen, 80% nitrogen, 2% other gases</li> <li><b>b 21% oxygen, 78% nitrogen, 1% other gases</b></li> <li>c 19% oxygen, 80% nitrogen, 1% other gases</li> <li>d 25% oxygen, 74% nitrogen, 1% other gases</li> </ul>
<b>245</b> id 3700	Under normal circumstances, which gas will diffuse from the blood to the alveoli:
	<ul style="list-style-type: none"> <li>a nitrogen</li> <li>b carbon monoxide</li> <li><b>c carbon dioxide</b></li> <li>d oxygen</li> </ul>

<b>246</b> id 3701	In the pulmonary artery there is :  a oxygen poor and carbon dioxide poor blood <b>b oxygen poor and carbon dioxide rich blood</b> c oxygen rich and carbon dioxide poor blond d oxygen rich and carbon dioxide rich blood
<b>247</b> id 3702	The thin walls of capillaries are permeable for :  a protein b platelets <b>c gases</b> d red blood cells
<b>248</b> id 3703	The circulatory system, among other things, allows for : 1. transportation of oxygen and carbon dioxide 2. transportation of information by chemical substances  a both are false b 1 is correct and 2 is false c 1 is false and 2 is correct <b>d 1 and 2 are correct</b>
<b>249</b> id 3704	The part of blood without cell is called :  a serum b lymph <b>c plasm</b> d water
<b>250</b> id 3706	Haemoglobin is:  a dissolved in the plasma b in the platelets <b>c in the red blood cells</b> d in the white blood cells
<b>251</b> id 3780	With a heart rate of 72 beats per minute and a stroke volume of 70 ml the cardial output is about:  <b>a 5 liters/min</b> b 6 liters/min c 7 liters/min d 8 liters/min
<b>252</b> id 3781	At rest the cardial output (the quantity of blood the heart pumps in one minute) of an adult is approximately:  a 450 ml/min <b>b 5 liters/min</b> c 45 liters/min d 75 liters/min

<b>253</b> id 3782	The heart muscle is supplied with blood from:
	<ul style="list-style-type: none"> <li>a the auricles</li> <li><b>b the coronary arteries</b></li> <li>c ventricles</li> <li>d the pulmonary veins</li> </ul>
<b>254</b> id 3783	The normal arterial blood-pressure of a healthy adult is (systolic/diastolic):
	<ul style="list-style-type: none"> <li>a 80/20 mm Hg</li> <li><b>b 120/80 mm Hg</b></li> <li>c 180/120 mm Hg</li> <li>d 220/180 mm Hg</li> </ul>
<b>255</b> id 3784	Which of the following statements is correct? The blood-pressure which is measured during flight medical checks is the pressure
	<ul style="list-style-type: none"> <li><b>a in the artery of the upper arm (representing the pressure at heart level)</b></li> <li>b in all the blood-vessels of the body (representing the pressure in the whole body)</li> <li>c in the muscles of the upper arm</li> <li>d in the veins of the upper arm</li> </ul>
<b>256</b> id 3785	Blood-pressure depends on: 1. the cardiac output 2. the resistance of the capillaries (peripheral resistance)
	<ul style="list-style-type: none"> <li>a 1 is correct 2 is false</li> <li><b>b 1 and 2 are correct</b></li> <li>c 1 is false 2 is correct</li> <li>d 1 and 2 are both false</li> </ul>
<b>257</b> id 3786	The blood-pressure depends on: 1. the work of the heart 2. the peripheral resistance 3. the elasticity of the arterial walls 4. the blood volume and viscosity
	<ul style="list-style-type: none"> <li><b>a 1,2,3 and 4 are correct</b></li> <li>b 1,2 and 3 are correct, 4 is false</li> <li>c 1,3 and 4 are correct, 2 is false</li> <li>d 2,3 and 4 are correct, 1 is false</li> </ul>
<b>258</b> id 3787	Changes in blood-pressure are measured by:
	<ul style="list-style-type: none"> <li><b>a pressoreceptors</b></li> <li>b arteriols</li> <li>c adrenal glands</li> <li>d pacemakers</li> </ul>
<b>259</b> id 3788	The pressoreceptors are located in
	<ul style="list-style-type: none"> <li>a the lungs</li> <li>b the intestines</li> <li>c the heart</li> <li><b>d the carotid and aortic arterial vessels</b></li> </ul>

<b>260</b> id 3789	When the pressoreceptors signal a lowering of the blood-pressure there are adaptation mechanisms which result in: 1. an increase of respiratory activity 2. the arterioles to constrict 3. an increase of cardiac output 4. the heart rate to rise
	<p>a 1,3 and 4 are correct, 2 is false</p> <p><b>b 2,3 and 4 are correct, 1 is false</b></p> <p>c 1,2 and 4 are correct, 3 is false</p> <p>d 1,2 and 3 are correct, 4 is false</p>
<b>261</b> id 3790	The physiological effects of accelerations to the human body depend on: 1. the duration of the G-forces 2. the onset rate of the G-forces 3. the magnitude of the G-forces 4. the direction of the G-forces.
	<p>a 2,3 and 4 are correct, 1 is false</p> <p>b 1,2,3 are correct, 4 is false</p> <p><b>c 1,2,3 and 4 are correct</b></p> <p>d 1 and 4 are correct, 3 is false</p>
<b>262</b> id 3791	Inertia in the direction head => feet will cause the blood-pressure in the brain to:
	<p>a remain constant</p> <p><b>b decrease</b></p> <p>c increase</p> <p>d first increase, then decrease</p>
<b>263</b> id 3792	During sustained positive G-forces the order of symptoms you can expect is:
	<p>a unconsciousness, black-out, tunnel vision and grey out.</p> <p><b>b grey-out, tunnel vision, black-out and unconsciousness.</b></p> <p>c black-out, grey-out, tunnel vision and unconsciousness.</p> <p>d grey-out, unconsciousness, black-out and tunnel vision</p>
<b>264</b> id 3793	Which of the following measures can reduce the chance of a black-out during positive G-maneuvres?
	<p>a Breathing oxygen.</p> <p><b>b A tilt back seat.</b></p> <p>c Sit in upright position and keep relaxed.</p> <p>d Hyperventilation.</p>
<b>265</b> id 3794	The normal rate of breathing of an adult at rest is about:
	<p><b>a 16 cycles per minute</b></p> <p>b 4 cycles per minute</p> <p>c 32 cycles per minute</p> <p>d 72 cycles per minute</p>
<b>266</b> id 3795	The volume of air being exchanged during a normal breathing cycle (tidal volume) is about:
	<p>a 150 ml of air</p> <p>b 350 ml of air</p> <p><b>c 500 ml of air</b></p> <p>d 75 ml of air</p>



<b>267</b> id 3796	When exhaling, the expired air contains:
	<ul style="list-style-type: none"> <li>a less water vapour than the inhaled air</li> <li>b more nitrogen than the inhaled air</li> <li><b>c more carbon dioxide than the inspired air</b></li> <li>d more oxygen than the inhaled air</li> </ul>
<b>268</b> id 3797	The primary factor to control the rate and depth of breathing is the:
	<ul style="list-style-type: none"> <li>a partial pressure of nitrogen</li> <li><b>b pressure of carbon dioxide in the blood</b></li> <li>c partial pressure of oxygen in the blood</li> <li>d total air pressure in the blood</li> </ul>
<b>269</b> id 3798	The transfer of oxygen from the alveoli to the blood can be described by:
	<ul style="list-style-type: none"> <li>a Boyle's Law</li> <li><b>b the law of diffusion</b></li> <li>c Dalton's Law</li> <li>d Henry's Law</li> </ul>
<b>270</b> id 3799	The transfer of carbon dioxide from the blood to the alveoli can be described by:
	<ul style="list-style-type: none"> <li>a Boyles Law</li> <li><b>b the law of diffusion</b></li> <li>c Dalton's Law</li> <li>d Henry's Law</li> </ul>
<b>271</b> id 3800	Early symptoms of hypoxia could be: 1. euphoria 2. decreased rate and depth of breathing 3. lack of concentration 4. visual disturbances
	<ul style="list-style-type: none"> <li>a 1,2 and 4 are correct</li> <li>b 1,2,3 and 4 are correct</li> <li>c 1,2 and 3 are correct</li> <li><b>d 1,3 and 4 are correct</b></li> </ul>
<b>272</b> id 3801	One of the most dangerous symptoms of hypoxia concerning flight safety is:
	<ul style="list-style-type: none"> <li>a hyperventilation, causing emotional stress</li> <li>b reduced coordination of limb movements, causing the pilot to spin</li> <li>c cyanosis, reducing then pilots ability to hear</li> <li><b>d impaired judgement, disabling the pilot to recognize the symptoms</b></li> </ul>
<b>273</b> id 3802	Which of the following symptoms can indicate the beginning of hypoxia? 1. Blue lips and finger nails. 2. Euphoria. 3. Flatulence. 4 .Unconsciousness..
	<ul style="list-style-type: none"> <li>a 1, 3 and 4 are correct.</li> <li>b 1, 2 and 3 are correct.</li> <li>c 2, 3 and 4 are correct.</li> <li><b>d 1, 2 and 4 are correct.</b></li> </ul>

<b>274</b> id 3803	Among the functions below, which is the most sensitive to hypoxia?
	<ul style="list-style-type: none"> <li><b>a Night vision.</b></li> <li>b Motor coordination.</li> <li>c Hearing.</li> <li>d Speech.</li> </ul>
<b>275</b> id 3804	<p>You are crossing the Alps in a non-pressurised aircraft at an altitude of 15.000 feet. You do not use the oxygen mask because you feel fine. This is unsafe, because:</p> <ul style="list-style-type: none"> <li>a the blood-pressure can get too high</li> <li><b>b your judgement could be impaired</b></li> <li>c the blood-pressure can get too low</li> <li>d you will get the bends</li> </ul>
<b>276</b> id 3805	<p>During a night flight at 10,000 feet you notice that your acuity of vision has decreased. In this case you can increase your acuity by:</p> <ul style="list-style-type: none"> <li>a dim the instrument lights</li> <li>b closing one eye</li> <li>c scanning sectors of the field of vision</li> <li><b>d breathing extra oxygen through the oxygen mask.</b></li> </ul>
<b>277</b> id 3806	<p>During flight all crewmembers have one or more of the following symptoms: 1. blue lips 2. mental disturbances 3. tingling sensations in arms and/or legs 4. reduction of peripheral vision Which is the possible cause?</p> <ul style="list-style-type: none"> <li>a Hypothermia.</li> <li>b Glaucoma.</li> <li><b>c Hypoxia.</b></li> <li>d Hypoglycaemia.</li> </ul>
<b>278</b> id 3807	<p>Which measure(s) will help to compensate hypoxia? 1. Descend below 10 000 FT. 2. Breathe 100 % oxygen. 3. Climb to or above 10 000 FT. 4. Reduce physical activities.</p> <ul style="list-style-type: none"> <li>a 1 and 2 are correct, 3 and 4 are false</li> <li>b 1, 2 and 3 are correct</li> <li>c only 1 is correct</li> <li><b>d 1, 2 and 4 are correct</b></li> </ul>
<b>279</b> id 3808	<p>Hypoxia can be prevented when the pilot</p> <ul style="list-style-type: none"> <li>a will not exceed 20 000 FT cabin pressure altitude</li> <li>b is relying on the body's built in warning system recognizing any stage of hypoxia</li> <li>c is swallowing, yawing and applying the Valsalva method</li> <li><b>d is using additional oxygen when flying above 10.000 feet</b></li> </ul>
<b>280</b> id 3809	<p>Hypoxia can occur because:</p> <ul style="list-style-type: none"> <li><b>a you are hyperventilating</b></li> <li>b you are getting toomuch solar radiation</li> <li>c you inhale too much nitrogen</li> <li>d the percentage of oxygen is lower at altitude</li> </ul>

<b>281</b> id 3883	<p>You should not despend blood without prior information from your flight surgeon.</p> <p>The most important reason for this advise is:</p> <ul style="list-style-type: none"> <li><b>a you are more susceptible to hypoxia after a blood-donation.</b></li> <li>b the chance you get the bends is higher after blood-donation</li> <li>c your blood-pressure is too low after blood-donation</li> <li>d your heart frequency is too low after blood-donation</li> </ul>
<b>282</b> id 3884	<p>Hyperventilation is:</p> <ul style="list-style-type: none"> <li>a a decreased lung ventilation</li> <li>b a too high percentage of nitrogen in the blood</li> <li><b>c an increased lung ventilation</b></li> <li>d a too high percentage of oxygen in the blood.</li> </ul>
<b>283</b> id 3885	<p>Hyperventilation is:</p> <ul style="list-style-type: none"> <li>a a reduction of partial oxygen pressure in the brain</li> <li>b an accellerated heart frequency caused by an increasing blood pressure</li> <li>c an accellerated heart frequency caused by a decreasing blood-pressure</li> <li><b>d a normal compensatory physiological reaction to a drop in partial oxygen pressure (i.e. when climbing a high mountain)</b></li> </ul>
<b>284</b> id 3886	<p>If somebody starts breathing faster and deeper without physiological need</p> <ul style="list-style-type: none"> <li><b>a the blood turns more alkaline</b></li> <li>b the blood turns more acid</li> <li>c the acid-base balance of the blood will not change</li> <li>d the blood pressure in the brain will rise significantly</li> </ul>
<b>285</b> id 3887	<p>During running your muscles are producing more CO<sub>2</sub>, raising the CO<sub>2</sub> level in the blood. The consequence is:</p> <ul style="list-style-type: none"> <li>a cyanosis</li> <li><b>b hyperventilation (the rate and depth of breathing will increase)</b></li> <li>c hypoxia</li> <li>d vertigo</li> </ul>
<b>286</b> id 3888	<p>During a final approach under bad weather conditions, you feel dizzy, get tingling sensations in your hands and a rapid heart rate. These symptoms could indicate:</p> <ul style="list-style-type: none"> <li>a hypoxia</li> <li>b disorientation</li> <li><b>c hyperventilation</b></li> <li>d carbon monoxide poisoning</li> </ul>
<b>287</b> id 3889	<p>During final approach under bad weather conditions you are getting uneasy, feel dizzy and get tingling sensations in your hands. When hyperventilating you should</p> <ul style="list-style-type: none"> <li>a use the oxygen mask</li> <li>b descend</li> <li>c apply the Valsalva method</li> <li><b>d control your rate and depth of breathing</b></li> </ul>

<b>288</b> id 3890	A pilot can overcome hyperventilation by:
	<ul style="list-style-type: none"> <li>a the use of drugs stabilizing blood pressure</li> <li>b depending on instruments</li> <li>c increasing the rate and depth of breathing to eliminate harmful carbon dioxide</li> <li><b>d controlling the rate and depth of breathing, breathing into a bag or speaking with a loud voice</b></li> </ul>
<b>289</b> id 3891	You can overcome hyperventilation by breathing into a plastic or paper bag. The intention is:
	<ul style="list-style-type: none"> <li><b>a to raise the level of CO<sub>2</sub> in the blood as fast as possible</b></li> <li>b to prevent you from exhaling too much oxygen</li> <li>c to increase the amount of nitrogen in the lung</li> <li>d to reduce blood pressure</li> </ul>
<b>290</b> id 3938	A passenger complains about a painful inflated belly at 8.000 feet. You advise him to: 1. unbuckle and massage the belly 2. stand up and let go the gases out of the intestines 3. eat less gas forming food and avoid carbonhydrated beverages before flight in the future 4. drink a lot of water throughout the flight
	<ul style="list-style-type: none"> <li><b>a 1, 2 and 3 are correct</b></li> <li>b 2, 3 and 4 are correct</li> <li>c 1 and 3 not advisable</li> <li>d only 4 is correct</li> </ul>
<b>291</b> id 3939	On ascent the gases in the digestive tract will
	<ul style="list-style-type: none"> <li>a shrink</li> <li>b stay the same</li> <li><b>c expand</b></li> <li>d be absorbed by tissues and blood</li> </ul>
<b>292</b> id 3942	Pain in the middle ear during descent may be eased by:
	<ul style="list-style-type: none"> <li>a blocking the effected ear with the palm of your hand</li> <li><b>b leveling off and possibly climbing</b></li> <li>c increasing the rate of descent</li> <li>d using an oxygen mask</li> </ul>
<b>293</b> id 3943	The occurrence of pain in the joints (bends) during decompression can be explained by the principle that:
	<ul style="list-style-type: none"> <li><b>a the quantity of a gas dissolved in a fluid is proportional to the pressure of that gas above the fluid (Henry's Law)</b></li> <li>b a volume of gas is inversely proportional to the pressure of this gas at constant temperature (Boyle's law)</li> <li>c the total pressure of a mixture of gases is equal to the sum of the partial pressures of the separate gases (Dalton's Law)</li> <li>d the molecules of a gas will move from an area of higher concentration or partial pressure to an area of lower concentration or partial pressure (law of diffusion)</li> </ul>

<b>294</b> id 3944	Pain in the joints caused by gas bubbles following a decompression is called:
	<ul style="list-style-type: none"> <li>a chokes</li> <li><b>b bends</b></li> <li>c creeps</li> <li>d leans</li> </ul>
<b>295</b> id 3945	Which symptom does not belong to the following list:
	<ul style="list-style-type: none"> <li><b>a leans</b></li> <li>b bends</li> <li>c chokes</li> <li>d creeps</li> </ul>
<b>296</b> id 3946	The symptoms caused by gas bubbles under the skin following a decompression are called:
	<ul style="list-style-type: none"> <li>a leans</li> <li>b bends</li> <li>c chokes</li> <li><b>d creeps</b></li> </ul>
<b>297</b> id 3947	Symptoms caused by gas bubbles in the lungs, following a decompression are called:
	<ul style="list-style-type: none"> <li>a leans</li> <li>b bends</li> <li>c creeps</li> <li><b>d chokes</b></li> </ul>
<b>298</b> id 3948	Some hours after a rapid decompression at FL 300 you experience pain in the joints. Which of following answers is correct?
	<ul style="list-style-type: none"> <li>a This phenomenon is treated by breathing 100% nitrogen.</li> <li>b This symptom indicates decompression sickness and will disappear when you take some exercise.</li> <li>c This phenomenon is treated by physiotherapy.</li> <li><b>d You should ask for medical advice (flight surgeon) since this is a symptom of decompression sickness.</b></li> </ul>
<b>299</b> id 3949	Tolerance to decompression sickness is decreased by: 1. SCUBA-Diving 2. Obesity 3. Age 4. Body height
	<ul style="list-style-type: none"> <li><b>a 1, 2 and 3 are correct</b></li> <li>b 2 and 4 are correct</li> <li>c 1, 3 and 4 are correct</li> <li>d only 4 is correct</li> </ul>
<b>300</b> id 3950	Decompression symptoms are caused by:
	<ul style="list-style-type: none"> <li>a low carbon dioxide pressure of inhaled air</li> <li><b>b dissolved gases from tissues and fluids of the body</b></li> <li>c low oxygen pressure of inhaled air</li> <li>d release of locked gases from joints</li> </ul>

<b>301</b> id 3951	In the event of rapid decompression the first action for the flight deck crew is:
	<ul style="list-style-type: none"> <li>a carry out check for structural damage</li> <li>b descent to the higher of 10000 ft or MSA</li> <li>c transmit mayday call</li> <li><b>d don oxygen masks and ensure oxygen flow</b></li> </ul>
<b>302</b> id 3952	After a rapid decompression at an altitude of 30.000 FT the first action of the pilot shall be:
	<ul style="list-style-type: none"> <li><b>a maintaining aircraft control and preventing hypoxia (use of oxygen mask)</b></li> <li>b informing ATC</li> <li>c informing the cabin crew</li> <li>d preventing panic of the passengers</li> </ul>
<b>303</b> id 3953	The following actions are appropriate when faced with symptoms of decompression sickness: 1. climb to higher level 2. descent to the higher of 10000 ft or MSA and land as soon as possible 3. breathe 100 % oxygen 4. get medical advice about recompression after landing
	<ul style="list-style-type: none"> <li>a 1 and 3 are correct</li> <li>b 1, 2 and 3 are correct</li> <li>c 1 and 4 are correct</li> <li><b>d 2, 3 and 4 are correct</b></li> </ul>
<b>304</b> id 3954	Decompression sickness can be prevented by: 1. avoiding cabin altitudes above 18 000 FT 2. maintaining cabin pressure below 8 000FT when flying at high altitudes 3. performing physical exercises before and during the flight 4. breathing 100 % oxygen for 30 min prior and during the flight
	<ul style="list-style-type: none"> <li><b>a 1, 2 and 4 are correct</b></li> <li>b 1, 2 and 3 are correct</li> <li>c 2 and 3 are correct, 4 is false</li> <li>d only 3 is correct</li> </ul>
<b>305</b> id 3955	What is the TUC at 18'000 FT?
	<ul style="list-style-type: none"> <li>a 1to 2 hours</li> <li>b 1 to 2 minutes</li> <li><b>c about 30 minutes</b></li> <li>d 5 to 10 minutes</li> </ul>
<b>306</b> id 3956	Following a rapid decompression at 30.000 feet, the time of useful consciousness would be about:
	<ul style="list-style-type: none"> <li><b>a 1 to 2 minutes</b></li> <li>b 3 to 5 minutes</li> <li>c 5 to 10 minutes</li> <li>d 10 to 12 minutes</li> </ul>
<b>307</b> id 3957	After a rapid decompression at 35 000 feet, the time of useful consciousness is about:
	<ul style="list-style-type: none"> <li>a 5 minutes.</li> <li>b 15 seconds or less</li> <li><b>c 30 to 60 seconds</b></li> <li>d 10 minutes.</li> </ul>

<b>308</b> id 3958	After SCUBA diving (more than 30 feet of depth) you have to wait a period of time before flying again. This period is at least:
	<ul style="list-style-type: none"> <li>a 48 hours</li> <li>b 6 hours</li> <li>c 12 hours</li> <li><b>d 24 hours</b></li> </ul>
<b>309</b> id 3959	Flying immediately after SCUBA diving involves the risk of getting:
	<ul style="list-style-type: none"> <li>a hypoxia</li> <li>b hyperventilation</li> <li><b>c decompression sickness without having a decompression</b></li> <li>d stress</li> </ul>
<b>310</b> id 4037	If someone hyperventilates due to stress his blood will get:
	<ul style="list-style-type: none"> <li><b>a more alkaline</b></li> <li>b less saturated with oxygen</li> <li>c more saturated with carbon dioxide</li> <li>d more acid</li> </ul>
<b>311</b> id 4038	Which phenomenon is common to hypoxia and hyperventilation?
	<ul style="list-style-type: none"> <li><b>a Tingling sensations in arms or legs.</b></li> <li>b Cyanosis (blueing of lips and finger-nails).</li> <li>c Severe headache.</li> <li>d Euphoria.</li> </ul>
<b>312</b> id 4039	1. Euphoria can be a symptom of hypoxia. 2. Someone in an euphoric condition is more prone to error.
	<ul style="list-style-type: none"> <li><b>a 1 and 2 are both correct</b></li> <li>b 1 is correct, 2 is not correct</li> <li>c 1 is not correct, 2 is correct</li> <li>d 1 and 2 are both not correct</li> </ul>
<b>313</b> id 6320	What is the major factor in the general population which predisposes an individual to heart attack?
	<ul style="list-style-type: none"> <li><b>a family history</b></li> <li>b the amount of saturated fats in the diet</li> <li>c high blood pressure</li> <li>d smoking</li> </ul>
<b>314</b> id 6367	Why does carbon monoxide (CO) lead to hypoxia?
	<ul style="list-style-type: none"> <li>a CO is far less (300 times) attached to hemoglobin than oxygen is</li> <li>b Accumulation of CO in blood leads to hyperventilation and thus to hypoxia</li> <li>c The increasing amounts of CO in the lung alveoles reverses oxygen diffusion</li> <li><b>d CO in blood displaces oxygen from the blood corpuscles impairing oxygen transport</b></li> </ul>

<b>315</b> id 6379	Susceptibility to carbon monoxide poisoning, as from smoking tobacco, increases as:
<b>a</b>	air pressure increases
<b>b</b>	altitude decreases
<b>c</b>	air temperature increases
<b>d</b>	<b>altitude increases</b>

### 40.2.1.3. High altitude environment

<b>316</b> id 1676	The ozone-layer is situated in the
<b>a</b>	thermosphere
<b>b</b>	troposphere
<b>c</b>	<b>stratosphere</b>
<b>d</b>	ionosphere

<b>317</b> id 3635	With regard to the humidity of air in current in a pressurized cabin, we know that it : -1 : varies between 40 and 60% -2 : varies between 5 and 15% -3 : may cause dehydration effecting the performance of the crew -4 : has no special effects on crew members
<b>a</b>	<b>2,3</b>
<b>b</b>	1,3
<b>c</b>	2,3,4
<b>d</b>	1,4

<b>318</b> id 3668	Which of the following statements are correct ? -1: Modern aircraft allow for 50 - 60% relative humidity in the cabin air under any conditions of flight, which is satisfactory for the body -2: Thirst is a belated symptom of dehydration -3: Dehydration may lead to clinical manifestations such as dizziness and fatigue -4: Drinking excessive quantities of water must be avoided since resistance to periods of low hydration will otherwise be lost
<b>a</b>	2,3,4
<b>b</b>	<b>2,3</b>
<b>c</b>	1,2,4
<b>d</b>	1,4

<b>319</b> id 6356	What is meant by "barotrauma"?
<b>a</b>	A situation where the oxygen partial pressure has decreased to a certain low level
<b>b</b>	Trapped gases inside your body create pain as cabin altitude decreases
<b>c</b>	Toothache due to increase in ambient pressure
<b>d</b>	<b>Trapped gases inside your body create pain as ambient pressure decreases</b>

## 40.2.2. Man and Environment: the sensory system

### 40.2.2.1. Central and pheripheral nervous system

<b>320</b> id 1702	Once we have constructed a mental model we tend
<b>a</b>	to alter that model unnecessarily frequently
<b>b</b>	to give undue weight to information that contradicts the model
<b>c</b>	to give equal weight to contradicting and confirming information
<b>d</b>	<b>to give undue weight to information that confirms the model</b>



<b>321</b> id 2875	The rate and depth of breathing is primary regulated by the concentration of:
	<ul style="list-style-type: none"> <li>a nitrogen in the air</li> <li><b>b carbon dioxide in the blood</b></li> <li>c water vapour in the alveoli</li> <li>d oxygen in the cells</li> </ul>
<b>322</b> id 3892	Rising the perceptual threshold of a sensory organ means:
	<ul style="list-style-type: none"> <li>a a lesser selectivity</li> <li>b a greater sensitivity</li> <li>c a greater selectivity</li> <li><b>d a lesser sensitivity</b></li> </ul>
<b>323</b> id 3893	Subcutaneous pressure receptors are stimulated by:
	<ul style="list-style-type: none"> <li>a environmental stressors</li> <li>b a touch on the skin indicating the true vertical</li> <li><b>c the pressure created on the corresponding body parts when sitting, standing or lying down</b></li> <li>d the condition of the body itself</li> </ul>
<b>324</b> id 3894	The kinesthetic sense does not orient an individual to his surroundings, but informs him of
	<ul style="list-style-type: none"> <li><b>a the relative motion and relative position of his body parts</b></li> <li>b a touch on the skin</li> <li>c our surroundings</li> <li>d the condition in the body itself</li> </ul>
<b>325</b> id 3895	A stereotype and involuntary reaction of the organism on stimulation of receptors is called:
	<ul style="list-style-type: none"> <li><b>a reflex</b></li> <li>b data processing</li> <li>c control system</li> <li>d change of stimulation level</li> </ul>
<b>326</b> id 6368	What is the World Health Organisation (WHO) definition of alcoholism?
	<ul style="list-style-type: none"> <li>a when the consumption by an adult male exceeds 10 units per week, for adult female 7 units per week</li> <li>b when consumption of alcohol causes loss of consciousness or memory loss</li> <li><b>c when the excessive use of alcohol repeatedly damages a person's physical, mental or social life</b></li> <li>d repeated use of alcohol to the extent that a person's physical health is impaired.</li> </ul>

#### 40.2.2.2. Vision

<b>327</b> id 429	What should a pilot do to keep his night vision (scotopic vision)?
	<ul style="list-style-type: none"> <li>a Avoid food containing high amounts of vitamin A</li> <li><b>b Not smoke before start and during flight and avoid flash-blindness</b></li> <li>c Wait at least 60 minutes to night-adapt before he takes off</li> <li>d Select meals with high contents of vitamin B and C</li> </ul>

328 id 430	Why should a pilot turn his attention to the instruments when approaching on a snowed up, foggy or cloudy winterday? Because
	<ul style="list-style-type: none"> <li>a <b>perception of distance and speed is difficult in an environment of low contrast</b></li> <li>b his attention will be distracted automatically under these conditions</li> <li>c the danger of a "greying out" will make it impossible to determine the height above the terrain</li> <li>d pressure differences can cause the altimeter to give wrong information</li> </ul>
329 id 433	Illuminated anti-collision lights in IMC
	<ul style="list-style-type: none"> <li>a will effect the pilots binocular vision</li> <li>b can cause colour-illusions</li> <li>c will improve the pilots depth perception</li> <li>d <b>can cause disorientation</b></li> </ul>
330 id 434	A shining light is fading out (i. e. when flying into fog, dust or haze). What kind of sensation could the pilot get?
	<ul style="list-style-type: none"> <li>a The light source will make the pilot believe, that he is climbing</li> <li>b The source of light stands still</li> <li>c The source of light is approaching him with increasing speed</li> <li>d <b>The source of light moves away from him</b></li> </ul>
331 id 435	To prevent the "autokinetic phenomena", the following can be done:
	<ul style="list-style-type: none"> <li>a look sideways to the source of light for better fixation</li> <li>b fixate the source of light, first with one eye, then with the other</li> <li>c <b>look out for additional references inside and/or outside the cockpit using peripheral vision also</b></li> <li>d turn down cabin light and shake head simultaneously</li> </ul>
332 id 436	Autokinesis is
	<ul style="list-style-type: none"> <li>a the automatical adjustment of the crystalline lens to objects situated at different distances</li> <li>b the phenomenon of spinning lights after the abuse of alcohol</li> <li>c the change in diameter of the pupil, when looking in the dark</li> <li>d <b>the apparent movement of a static single light when stared at for a relatively long period of time in the dark</b></li> </ul>
333 id 439	The time for dark adaptation is
	<ul style="list-style-type: none"> <li>a 10 min</li> <li>b 10 sec</li> <li>c 1/10 sec</li> <li>d <b>30 min</b></li> </ul>
334 id 443	Sunglasses with variable filtration (phototrope glasses)
	<ul style="list-style-type: none"> <li>a are advantageous for pilots</li> <li>b are generally forbidden for pilots</li> <li>c are ideal, as long as there are no polarisation effects</li> <li>d <b>can have disadvantages when used in the cockpit due to their dependence on ultraviolet light which is screened by the cockpit glass</b></li> </ul>

<b>335</b> id 445	Depth perception when objects are close (< 1 m) is achieved through
	<ul style="list-style-type: none"> <li>a the "blind spot" at the retina</li> <li>b good visibility only</li> <li>c visual memory only</li> <li><b>d seeing with two eyes (binocular vision)</b></li> </ul>
<b>336</b> id 446	Adaptation is
	<ul style="list-style-type: none"> <li>a the change of the diameter of the pupil</li> <li><b>b the adjustment of the eyes to high or low levels of illumination</b></li> <li>c the reflection of the light at the cornea</li> <li>d the adjustment of the crystalline lens to focus light on the retina</li> </ul>
<b>337</b> id 447	The time required for complete adaptation is
	<ul style="list-style-type: none"> <li>a for day and night: 30 min</li> <li>b for high levels of illumination 10 minutes and for low levels of illumination 30 minutes</li> <li><b>c for high levels of illumination 10 sec and for full dark adaptation 30 min</b></li> <li>d for night 10 sec and for day 30 min</li> </ul>
<b>338</b> id 448	The requirement of good sunglasses is to
	<ul style="list-style-type: none"> <li>a eliminate distortion in aircraft windshields</li> <li>b fit to the pilots individual taste</li> <li><b>c absorb enough visible light to eliminate glare without decreasing visual acuity, absorb UV and IR radiation and absorb all colors equally</b></li> <li>d increase the time for dark adaptation</li> </ul>
<b>339</b> id 449	Why does a deficiency in vitamin A cause night-blindness?
	<ul style="list-style-type: none"> <li>a Vitamin A deficiency interrupts the oxygen supply to the photosensitive cells</li> <li>b Accomodation is destroyed</li> <li><b>c Vitamin A is essential to the regeneration of visual purple</b></li> <li>d The transfer of light stimulus from the rods to a nerve impulse depends on vitamin A</li> </ul>
<b>340</b> id 450	Scanning at night should be performed by:
	<ul style="list-style-type: none"> <li>a avoiding food containing Vitamin A</li> <li>b scanning with one eye open</li> <li>c concentrated fixation on an object (image must fall on the fovea centralis)</li> <li><b>d slight eye movements to the side of the object</b></li> </ul>
<b>341</b> id 453	Flickering light when reflected from spinning rotor blades
	<ul style="list-style-type: none"> <li><b>a can cause spatial disorientation and/or nausea, when looked at for a longer period of time</b></li> <li>b can be neglected</li> <li>c can be avoided when the strobe-lights are switched on</li> <li>d should be avoided, because it may destroy the optical nerve</li> </ul>

<b>342</b> id 461	Hypoxia will effect night vision
<b>a at 5000 FT</b>	
<b>b</b>	less than day vision
<b>c</b>	and causes the autokinetic phenomena
<b>d</b>	and causes hyperventilation
<b>343</b> id 465	What does not impair the function of the photosensitive cells?
<b>a</b>	Toxic influence (alcohol, nicotine, medication)
<b>b</b>	Oxygen deficiency
<b>c</b>	Acceleration
<b>d Fast speed</b>	
<b>344</b> id 466	The fovea centralis is
<b>a</b>	the area of best day vision and best night vision
<b>b</b>	the area of the blind spot (optic disc)
<b>c</b>	where the optic nerves come together with the pupil
<b>d the area of best day vision and no night vision at all</b>	
<b>345</b> id 469	The retina of the eye
<b>a</b>	only regulates the light that falls into the eye
<b>b</b>	filters the UV-light
<b>c</b>	is the muscle, changing the size of the crystalline lens
<b>d is the light-sensitive inner lining of the eye containing the photoreceptors essential for vision</b>	
<b>346</b> id 487	Vibrations can cause blurred vision. This is due to tuned resonance oscillations of the:
<b>a</b>	optic nerve
<b>b eyeballs</b>	
<b>c</b>	cristalline lens
<b>d</b>	photosensitive cells
<b>347</b> id 512	Vitamin A and possibly vitamins B and C are chemical factors and essential to good night vision: 1. Vitamin deficiencies may decrease night vision performance 2. An excess intake of vitamin A will improve night vision performance significantly 3. Pilots should be carefully concerned to take a balaced diet containing sufficient vitamin A 4. Vitamin deficiencies may decrease visual acuity in photopic vision but not in scotopic vision
<b>a</b>	Only 4 is false
<b>b</b>	1, 2, 3 and 4 are correct
<b>c 1 and 3 are correct, 2 and 4 are false</b>	
<b>d</b>	1 and 3 are false, 2 and 4 are correct

<b>348</b> id 1660	When flying at night the first sense to be affected by a slight degree of hypoxia is the
	<ul style="list-style-type: none"> <li>a proprioceptive sensitivity</li> <li>b cochlea</li> <li>c sense of balance</li> <li><b>d vision</b></li> </ul>
<b>349</b> id 1686	The part(s) of the eye responsible for night vision
	<ul style="list-style-type: none"> <li>a are rods and cones</li> <li>b are the cones</li> <li><b>c are the rods</b></li> <li>d is the cornea</li> </ul>
<b>350</b> id 1687	The fovea
	<ul style="list-style-type: none"> <li>a is an area in which rods predominate</li> <li>b is sensitive to very low intensities of light</li> <li><b>c is an area in which cones predominate</b></li> <li>d is the area responsible for night vision</li> </ul>
<b>351</b> id 1688	When the optical image forms in front of the retina; we are talking about
	<ul style="list-style-type: none"> <li>a presbyopia</li> <li>b hypermetropia</li> <li><b>c myopia</b></li> <li>d astigmatism</li> </ul>
<b>352</b> id 3628	Which of the following statement(s) is/are correct ? - 1: The retina has rods on its peripheral zone and cones on its central zone - 2: The retina has cones and the crystalline lens has rods - 3: The rods allow for night-vision - 4: The cones are located on the peripheral zone of the retina
	<ul style="list-style-type: none"> <li>a 2,3</li> <li>b 1</li> <li><b>c 1,3</b></li> <li>d 4</li> </ul>
<b>353</b> id 3629	In order to get colour vision, it is necessary : -1 : for there to be considerable amount of light (ambient luminosity) -2 : at night to look at the point to be observed at an angle of 15° -3 : to allow the eye a period of time to get used to the light -4 : to avoid white light
	<ul style="list-style-type: none"> <li>a 2,4</li> <li><b>b 1,2,3</b></li> <li>c 1</li> <li>d 3</li> </ul>
<b>354</b> id 3630	The retina allows for the acquisition of colours as a result of the:
	<ul style="list-style-type: none"> <li>a crystalline lens</li> <li>b rods located in its central part</li> <li><b>c cones located in its central part</b></li> <li>d rods located in its peripheral zone</li> </ul>

<b>355</b> id 3631	The phenomenon of accommodation, which enables a clear image to be obtained, is accomplished by which of the following ?
	<ul style="list-style-type: none"> <li>a The retina</li> <li>b The rods</li> <li>c The cones</li> <li><b>d The crystalline lens</b></li> </ul>
<b>356</b> id 3632	We know that, in the mechanism of sight, the retina allows for :
	<ul style="list-style-type: none"> <li><b>a the acquisition of the visual signal and its coding into physiological data</b></li> <li>b the acquisition of the visual signal and the accommodation process</li> <li>c binocular vision</li> <li>d the analysis of visual signals</li> </ul>
<b>357</b> id 3633	We know that transverse accelerations (Gy) - 1 : are above all active in turns and pull-outs - 2 : are present during take-off and landing - 3 : are rare during routine flights - 4 : often lead to loss of consciousness
	<ul style="list-style-type: none"> <li><b>a 1,2,3</b></li> <li>b 1,4</li> <li>c 2,3</li> <li><b>d 3</b></li> </ul>
<b>358</b> id 3658	Rods (scotopic visual cells) allow for :
	<ul style="list-style-type: none"> <li>a precise vision of contours and colours</li> <li>b good, virtually instantaneous night-vision (scotopic vision)</li> <li><b>c good night-vision after adaptation to darkness (30 min)</b></li> <li>d red vision, both during the day and at night</li> </ul>
<b>359</b> id 3661	To optimise one's night-vision performance, it is necessary : - 1 : to spend some time getting adapted to low levels of illumination - 2 : to increase the instrument panel lighting by reducing the cockpit lighting - 3 : not to focus on the point to be observed - 4 : to avoid blinding
	<ul style="list-style-type: none"> <li><b>a 2,3,4</b></li> <li>b 1,2,4</li> <li><b>c 1,3,4</b></li> <li><b>d 2</b></li> </ul>
<b>360</b> id 3662	Visual perception of depth at close to medium distance is primarily due to
	<ul style="list-style-type: none"> <li>a interactions between cones and rods</li> <li><b>b binocular vision</b></li> <li>c peripheral vision</li> <li>d the high sensitivity of the retina</li> </ul>

<b>361</b> id 3670	With regard to central vision, which of the following statements are correct ? -1: It is due to the functioning of rods -2: It enables details, colours and movement to be seen -3: Its very active both during the day and at night -4: It represents a zone where about 150.000 cones per mm are located to give high resolution capacity
<b>a</b>	2,3,4
<b>b</b>	1,2,4
<b>c</b>	<b>2,4</b>
<b>d</b>	1,3
<b>362</b> id 3671	Which of the following statements is correct ?
<b>a</b>	Hearing is the sense which collects most information in man
<b>b</b>	<b>70% of information processed by man enters via the visual channel</b>
<b>c</b>	40% of information processed by man enters via the visual channel
<b>d</b>	The kinesthetic channel provides the most important information for flying
<b>363</b> id 3682	The ability of the human eye to read alphanumeric information (piercing vision):
<b>a</b>	is limited to daytime using the rod cells
<b>b</b>	<b>is limited to the foveal area of the retina</b>
<b>c</b>	is almost equally shared by the entire retina
<b>d</b>	is governed by peripheral vision over an area of approximately 20 degrees of angle
<b>364</b> id 3896	The amount of light which strikes the retina is controlled by:
<b>a</b>	the lens
<b>b</b>	the ciliary body
<b>c</b>	the cornea
<b>d</b>	<b>the pupil</b>
<b>365</b> id 3897	When focussing on near objects:
<b>a</b>	the shape of lens gets flatter
<b>b</b>	<b>the shape of lens gets more spherical</b>
<b>c</b>	the cornea gets smaller
<b>d</b>	the pupil gets larger
<b>366</b> id 3898	The ability of the lens to change its shape is called:
<b>a</b>	adaptation
<b>b</b>	binocular vision
<b>c</b>	depth perception
<b>d</b>	<b>accommodation</b>
<b>367</b> id 3899	The mechanism of accommodation is caused by:
<b>a</b>	the functioning of the muscles of the eye
<b>b</b>	the elasticity of the optic nerves
<b>c</b>	<b>the functioning of the ciliary muscle around the lens</b>
<b>d</b>	the diameter of the pupil

<b>368</b> id 3900	Presbyopia is:
	<ul style="list-style-type: none"> <li>a myopia</li> <li>b short sightedness</li> <li><b>c far sightedness linked with age</b></li> <li>d high intraocular pressure</li> </ul>
<b>369</b> id 3902	Glaucoma 1. can lead to total blindness 2. can lead to undetected reduction of the visual field 3. reduces visual acuity in its final stage
	<ul style="list-style-type: none"> <li>a 1 is correct, 2 and 3 are false</li> <li>b 1 and 3 are correct, 2 is false</li> <li>c 2 and 3 are correct, 1 is false</li> <li><b>d 1, 2 and 3 are correct</b></li> </ul>
<b>370</b> id 3903	Glaucoma is:
	<ul style="list-style-type: none"> <li>a disturbed adaptation</li> <li>b disturbed colour vision</li> <li><b>c high intra-ocular pressure</b></li> <li>d disturbed night vision</li> </ul>
<b>371</b> id 3904	Glaucoma is characterised by: 1. disturbed light adaptation 2. progressive narrowing of the visual field 3. insidious onset and concealed progression 4. an increase in intra-ocular pressure
	<ul style="list-style-type: none"> <li><b>a 2, 3 and 4 are correct ,1 is false</b></li> <li>b 1, 2, 3 and 4 are correct</li> <li>c 1, 2 and 3 are correct, 4 is false</li> <li>d 1, 3 and 4 are correct, 2 is false</li> </ul>
<b>372</b> id 3905	The peripheral vision is important for:
	<ul style="list-style-type: none"> <li>a colour vision</li> <li>b visual acuity</li> <li>c binocular vision</li> <li><b>d detecting moving objects</b></li> </ul>
<b>373</b> id 3906	Although we have a field of vision of more than 180° it is important during flight to use the scan ning technique, because
	<ul style="list-style-type: none"> <li>a it is tiring to look continually in the same direction</li> <li><b>b only in the foveal area resolution is good enough to see an object clearly</b></li> <li>c only in the peripheral area of the retina resolution is good enough to see an object clearly</li> <li>d the reduction in the field of vision with decreasing altitude is due to a lack of vitamin A</li> </ul>
<b>374</b> id 3907	The time an eye needs to adapt fully to the dark is about:
	<ul style="list-style-type: none"> <li>a 5 minutes</li> <li><b>b 25 - 30 minutes</b></li> <li>c 10 minutes</li> <li>d 10 seconds</li> </ul>



<b>375</b> id 3908	The photosensitive cells beeing responsible for night vision are called:
	<ul style="list-style-type: none"> <li><b>a the rods</b></li> <li>b the fovea</li> <li>c the cones</li> <li>d the cones and the rods</li> </ul>
<b>376</b> id 3909	When flying through a thunderstorm with lightning you can protect yourself from flashblindness by: a) turning up the intensity of cockpit lights b) looking inside the cockpit c) wearing sunglasses d) using face blinds or face curtains when installed
	<ul style="list-style-type: none"> <li>a c) and d) are correct, a) and b) are false</li> <li>b a), b) and c) are correct, d) is false</li> <li>c a) and b) are correct, c) and d) are false</li> <li><b>d a), b), c) and d) are correct</b></li> </ul>
<b>377</b> id 3910	Which scanning technique should be used when flying at night?
	<ul style="list-style-type: none"> <li>a Blink your eyes.</li> <li>b Look directly at the object.</li> <li><b>c Look to the side (15 - 20 deg) of the object.</b></li> <li>d Look with one eye.</li> </ul>
<b>378</b> id 3925	Empty field myopia is caused by:
	<ul style="list-style-type: none"> <li><b>a lack of distant focal points</b></li> <li>b atmospheric perspective</li> <li>c ozone at altitude</li> <li>d flying over mountainous terrain</li> </ul>
<b>379</b> id 6251	How long does it take to develop full night vision adaption?
	<ul style="list-style-type: none"> <li>a 30 seconds</li> <li>b 10 minutes</li> <li><b>c 30 minutes</b></li> <li>d 1 hour</li> </ul>
<b>380</b> id 6298	The optic system of the eye consists of
	<ul style="list-style-type: none"> <li>a uvea, sclera, retina</li> <li><b>b cornea, lens, vitreous humor</b></li> <li>c retina, optic nerve, blind spot</li> <li>d rods, cones, fovea centralis</li> </ul>
<b>381</b> id 6299	The three coats of the eye are
	<ul style="list-style-type: none"> <li>a cornea, lens, vitreous humor</li> <li>b ciliary body, iris, pupil</li> <li><b>c sclera, uvea, retina</b></li> <li>d optic nerve, retina, blind spot</li> </ul>

<b>382</b> id 6300	The refractive power of the lens is
	<ul style="list-style-type: none"> <li>a about 43 D</li> <li>b about 30 D</li> <li><b>c variable from 16 ..... 30 D</b></li> <li>d variable from 43 ..... 60 D</li> </ul>
<b>383</b> id 6301	Shortsightedness means
	<ul style="list-style-type: none"> <li><b>a subjects start later with presbyopia than usual</b></li> <li>b the eyeball is virtually too short</li> <li>c subjects need a convex lens for correction</li> <li>d subjects need a combination of spherical and cylindrical lenses for correction</li> </ul>
<b>384</b> id 6302	The onset of presbyopia depends
	<ul style="list-style-type: none"> <li>a on the degeneration of the vitreous humor</li> <li>b only on age</li> <li><b>c on age and whether the subjects is shortsighted, farsighted, or normal sighted</b></li> <li>d on the degeneration of the retina</li> </ul>
<b>385</b> id 6303	The following statements are true except
	<ul style="list-style-type: none"> <li><b>a cones are responsible for night vision and are most densely in the fovea centralis</b></li> <li>b rods are responsible for night vision and have a poor ability to discriminate</li> <li>c cones are most densely in the fovea centralis and have a one-to-one connection to the brain</li> <li>d rods are responsible for ambient vision and are in groups connected to the brain</li> </ul>
<b>386</b> id 6304	Color vision is performed by three different classes of cones:
	<ul style="list-style-type: none"> <li>a yellow, blue, red</li> <li>b green, blue, yellow</li> <li>c red, yellow, blue</li> <li><b>d red, green, blue</b></li> </ul>
<b>387</b> id 6305	The normal visual acuity allows discrimination of two different points under an angle of
	<ul style="list-style-type: none"> <li>a 1 degree of arc</li> <li><b>b 1 minute of arc</b></li> <li>c 10 minutes of arc</li> <li>d 1 second of arc</li> </ul>
<b>388</b> id 6314	Which one of the following statements is correct regarding the use of cockpit lighting for night flight?
	<ul style="list-style-type: none"> <li>a Reducing the light intensity to a minimum level will eliminate blind spots</li> <li>b Coloration shown on maps is least affected by the use of direct red lighting</li> <li>c Cockpit lighting may only be used during short intervals to protect the light adaption</li> <li><b>d The use of regular white light, such as flashlight, will impair night adaption</b></li> </ul>

<b>389</b> id 6317	Below are four statements about rods and cones. Which one is true?
	<ul style="list-style-type: none"> <li><b>a Cones give the best visual acuity</b></li> <li>b Rods are sensitive to color and small details</li> <li>c Rods are concentrated around the fovea</li> <li>d Cones are effective in both daylight and darkness</li> </ul>
<b>390</b> id 6321	Visual acuity is best within ..... degrees of the fovea and reduces ..... towards the periphery of vision:
	<ul style="list-style-type: none"> <li>a 20, rapidly</li> <li><b>b 2-3, rapidly</b></li> <li>c 20, gradually</li> <li>d 2-3, gradually</li> </ul>
<b>391</b> id 6323	The part of the eye that bends the light the most is:
	<ul style="list-style-type: none"> <li>a fluid in the eye</li> <li>b the iris</li> <li>c the lens</li> <li><b>d the cornea</b></li> </ul>
<b>392</b> id 6358	What technique should a pilot use to scan for traffic to the right and the left during straight and level flight?
	<ul style="list-style-type: none"> <li>a Concentrate on moving objects until identified</li> <li>b Concentrate on relative movement detected in the peripheral vision area</li> <li>c Continuous sweeping of the windshield right to left</li> <li><b>d Systematically focus on different segments of the sky for short intervals</b></li> </ul>
<b>393</b> id 6385	How should you scan for other traffic at night?
	<ul style="list-style-type: none"> <li>a scan the visual field very rapidly</li> <li>b look to the side of the object and scan rapidly</li> <li><b>c look to the side of the object and scan slowly</b></li> <li>d look above or below the object and scan rapidly</li> </ul>

#### 40.2.2.3. Hearing

<b>394</b> id 474	Which part of the inner ear is responsible for the perception of noise?
	<ul style="list-style-type: none"> <li>a The eustachian tube</li> <li>b The semicircular canals</li> <li>c The sacculus and utricle</li> <li><b>d The cochlea</b></li> </ul>
<b>395</b> id 478	Which is the audible range to human hearing?
	<ul style="list-style-type: none"> <li><b>a Between 16 Hz and 20 KHz</b></li> <li>b Between 16 MHz and 20 000MHz</li> <li>c Between 16 KHz and 20 KHz</li> <li>d Between 16 Hz and 20 MHz</li> </ul>

<b>396</b> id 479	Which of the following components belong to the middle ear?
<b>a Ossicles</b>	
b Otoliths	
c Endolymph	
d Semicircular canals	
<b>397</b> id 1665	The group of tiny bones (the hammer, anvil and stirrup) are situated in
<b>a the middle ear</b>	
b the inner ear	
c the outer ear	
d the maxillary sinus	
<b>398</b> id 1672	Any prolonged exposure to noise in excess of 90 db can end up in
<b>a noise induced hearing loss</b>	
b conductive hearing loss	
c presbycusis (effects of aging)	
d a ruptured ear drum	
<b>399</b> id 1673	All pilots are going to suffer some hearing deterioration as part of the process of growing old. The effects of aging
a are to cut out all tones equally	
b are to cut out the low tones first	
<b>c are to cut out the high tones first</b>	
d will not affect a pilot's hearing if he is wearing ear-plugs all the time	
<b>400</b> id 1674	The human ear is capable of perceiving vibrations between the frequencies
a 20,000 - 40,000 Hz	
b 0 - 16 Hz	
<b>c 16 - 20,000 Hz</b>	
d 30 - 15000 dB	
<b>401</b> id 1675	The intensity of a sound is measured in
a hertz	
<b>b decibels</b>	
c cycles per second	
d curies	
<b>402</b> id 3911	The Eustachian tube connects:
a the semi circular canals	
b the auditory duct and the inner ear	
<b>c the middle ear and the pharynx</b>	
d the middle ear and the inner ear	

<b>403</b> id 3914	Excessive exposure to noise damages:
	<ul style="list-style-type: none"> <li>a the eardrum</li> <li>b the semi circular canals</li> <li>c the ossicles</li> <li><b>d the sensitive membrane in the cochlea</b></li> </ul>
<b>404</b> id 6307	Sound waves are transferred from the outer ear to the inner ear by:
	<ul style="list-style-type: none"> <li>a the static organ</li> <li>b the cochlea</li> <li><b>c the ossicles</b></li> <li>d the otolith organ</li> </ul>
<b>405</b> id 6308	The organ that transfers vibrations to nerve impulses in your ear is called
	<ul style="list-style-type: none"> <li><b>a the cochlea</b></li> <li>b the ossicles</li> <li>c the otolith organs</li> <li>d the semicircular canals</li> </ul>
<b>406</b> id 6343	What is the audible range of the human ear?
	<ul style="list-style-type: none"> <li>a 600 – 4000 Hz</li> <li><b>b 20 – 20 000 Hz</b></li> <li>c 200 – 2000 Hz</li> <li>d 60 – 30 000 Hz</li> </ul>
<b>407</b> id 6359	What unit of measurement is used for intensity of sound?
	<ul style="list-style-type: none"> <li>a W</li> <li>b hPa</li> <li>c hPa/m</li> <li><b>d dB</b></li> </ul>
<b>408</b> id 6360	What is the role of the Eustachian tube in your ear?
	<ul style="list-style-type: none"> <li>a To transfer mechanical energy from the eardrum to the ossicles</li> <li><b>b To equalise air pressure on both sides of the eardrum</b></li> <li>c To transform mechanical energy from sound waves to electrical signals</li> <li>d To convert acceleration and gravity forces to electrical signals, which in turn are sent to your brain for interpretation</li> </ul>
<b>409</b> id 6377	What sound intensity represents the threshold of pain?
	<ul style="list-style-type: none"> <li>a 95 dB</li> <li>b 115 dB</li> <li><b>c 140 dB</b></li> <li>d 170 dB</li> </ul>

#### 40.2.2.4. Equilibrium

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**410** | Tuned resonance of body parts, distressing the individual, can be caused by  
id 458

- a angular velocity
- b vibrations from 16 Hz to 18 kHz
- c acceleration along the longitudinal body axis
- d vibrations from 1 to 100 Hz**

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**411** | Which force(s) affect(s) the otoliths in the utricle and saccule?  
id 471

- a Gravity alone
- b Gravity and linear acceleration**
- c Linear acceleration and angular acceleration
- d Angular acceleration

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**412** | The semicircular canals of the inner ear monitor  
id 472

- a relative speed and linear accelerations
- b movements with constant speeds
- c angular accelerations**
- d gravity

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**413** | Which part of the vestibular apparatus is affected by changes in gravity and linear acceleration?  
id 475

- a The eustachian tube
- b The semicircular canals
- c The cochlea
- d The saccule and utricle**

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**414** | Which part of the vestibular apparatus is responsible for the impression of angular acceleration?  
id 476

- a The saccule and utricle
- b The cochlea
- c The semicircular canals**
- d The eustachian tube

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**415** | The vestibular organ  
id 477

- a reacts to linear/angular acceleration and gravity**
- b gives the impression of hearing
- c reacts to pressure changes in the middle ear
- d reacts to vibrations of the cochlea

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**416** | What could the crew do in order to avoid air-sickness with passengers? 1. Avoid  
id 483 | turbulences. 2. Avoid flying through rough weather. 3. Seat passenger close to the center of gravity. 4. Give pertinent information.

- a 3 and 4 are correct, 1 and 2 are false
- b 1, 2 and 3 are correct, 4 is false
- c 1, 2, 3 and 4 are correct**
- d Only 4 is correct

<b>417</b> id 484	<p>The probability to suffer from air-sickness is higher, when</p> <ul style="list-style-type: none"> <li>a the passenger has taken anti-motion sickness remedies prior flight</li> <li><b>b the passenger or student is afraid and/or demotivated to fly</b></li> <li>c the student is motivated and adapted to the specific stimuli of flying</li> <li>d the student has good outside visual reference</li> </ul>
<b>418</b> id 486	<p>Vibrations within the frequency band of 1/10 to 2 Hertz are a factor contributing to air-sickness, because they</p> <ul style="list-style-type: none"> <li><b>a upset the vestibular apparatus</b></li> <li>b interfere with those of the own blood thus causing circulation problems</li> <li>c interfere with the frequencies of the central nervous system</li> <li>d make the stomach and its contents vibrating at the same frequency</li> </ul>
<b>419</b> id 488	<p>What is understood by air-sickness?</p> <ul style="list-style-type: none"> <li><b>a A sensory conflict within the vestibular system accompanied by nausea, vomiting and fear</b></li> <li>b An illness caused by evaporation of gases in the blood</li> <li>c An illness caused by reduced air pressure</li> <li>d An illness caused by an infection of the middle ear</li> </ul>
<b>420</b> id 489	<p>When spinning an aircraft, the predominating type of acceleration will be</p> <ul style="list-style-type: none"> <li>a vertical acceleration</li> <li>b radial acceleration</li> <li>c linear acceleration</li> <li><b>d angular acceleration</b></li> </ul>
<b>421</b> id 501	<p>The cupula in the semicircular canal will be bent, when a rotation begins. This is because</p> <ul style="list-style-type: none"> <li>a the cupula will stay in place and give the correct impression</li> <li><b>b the fluid (endolymph) within the semicircular canal lags behind the accelerated canal walls</b></li> <li>c the fluid (endolymph) will precede the accelerated canal walls</li> <li>d the cupula will bend on constant angular speeds</li> </ul>
<b>422</b> id 502	<p>The semicircular canals monitor</p> <ul style="list-style-type: none"> <li><b>a angular accelerations</b></li> <li>b relative speed</li> <li>c horizontal and vertical accelerations</li> <li>d gravity</li> </ul>
<b>423</b> id 504	<p>Changes in ambient pressure and accelerations during flight are important physiological factors limiting the pilots performance if not taken into consideration. Linear accelerations along the long axis of the body</p> <ul style="list-style-type: none"> <li>a are of no interest when performing aerobatics</li> <li>b will have an effect on blood pressure and blood flow if the accelerative force acts across the body at right angles to the body axis</li> <li>c will not stimulate any of the vestibular organs</li> <li><b>d change blood pressure and blood volume distribution in the body</b></li> </ul>

<b>424</b> id 1654	The semicircular canals detect
	<ul style="list-style-type: none"> <li>a sound waves</li> <li><b>b angular accelerations</b></li> <li>c linear accelerations</li> <li>d changes in arterial pressure</li> </ul>
<b>425</b> id 1666	The semicircular canals form part of the
	<ul style="list-style-type: none"> <li>a external ear</li> <li>b middle ear</li> <li>c ear drum</li> <li><b>d inner ear</b></li> </ul>
<b>426</b> id 1669	Angular accelerations are picked up in the inner ear by
	<ul style="list-style-type: none"> <li>a the tympanum</li> <li><b>b the semicircular canals</b></li> <li>c the saccule and the utricle</li> <li>d the cochlea</li> </ul>
<b>427</b> id 2863	Man possesses a system for maintaining his internal equilibrium in the face of variations brought about by external stimulations. This internal equilibrium is called :
	<ul style="list-style-type: none"> <li>a Metastasis</li> <li>b Heterostasis</li> <li>c Isothermy</li> <li><b>d Homeostasis</b></li> </ul>
<b>428</b> id 2872	Which of the following systems are involved in the appearance of motion sickness ? -1 : Hearing -2 : The vestibular system -3 : Vision -4 The proprioceptive senses "Seat-of-the-Pants-Sense") -5 : The gastrointestinal system
	<ul style="list-style-type: none"> <li>a 2,3,4,5</li> <li>b 1,2,3</li> <li><b>c 2,3,4</b></li> <li>d 1,2,5</li> </ul>
<b>429</b> id 3625	Perceptual conflicts between the vestibular and visual systems are : 1 - classic and resistant when flying in IMC 2 - sensed via impressions of rotation 3 - sensed via distorted impressions of the attitude of the aircraft 4 - considerable during prolonged shallow turns under IMC
	<ul style="list-style-type: none"> <li>a 3,4</li> <li>b 2,3,4</li> <li>c 1,3</li> <li><b>d 1,2,3,4</b></li> </ul>
<b>430</b> id 3627	The vestibular system is composed of -1: two ventricles -2 : a saccule -3 : an utricle -4 : three semicircular channels
	<ul style="list-style-type: none"> <li>a 2,3</li> <li>b 1,4</li> <li><b>c 2,3,4</b></li> <li>d 1,3,4</li> </ul>



<b>431</b> id 3915	The inner ear is able to perceive: 1. angular acceleration 2. linear acceleration 3. noise
<b>a</b>	1 and 2 are correct, 3 is false
<b>b</b>	2 and 3 are correct, 1 is false
<b>c</b>	<b>1 and 2 and 3 are correct</b>
<b>d</b>	2 is correct, 1 and 3 are both false

<b>432</b> id 3916	Angular accelerations are perceived by:
<b>a</b>	the receptors in the skin and the joints
<b>b</b>	the cochlea
<b>c</b>	the otholits
<b>d</b>	<b>the semi circular canals</b>

<b>433</b> id 3917	The otoliths in the inner ear are sensitive to:
<b>a</b>	constant speed only
<b>b</b>	angular acceleration
<b>c</b>	angular speed
<b>d</b>	<b>linear acceleration and gravity</b>

#### 40.2.2.5. Integration of sensory inputs

<b>434</b> id 264	Which sensations does a pilot get, when he is rolling out of a coordinated level turn?
<b>a</b>	<b>Descending and turning into the opposite direction</b>
<b>b</b>	Flying straight and level
<b>c</b>	Climbing
<b>d</b>	Turning into the original direction

<b>435</b> id 265	How can a pilot prevent "pilots-vertigo"?
<b>a</b>	Maintain orientation on outside visual references as long as possible and rely upon the senses of balance..
<b>b</b>	Practise an extremely fast scanning technique using off-center vision.
<b>c</b>	Use the autopilot and disregard monitoring the instruments.
<b>d</b>	<b>Avoid steep turns and abrupt flight maneouvers and maintain an effective instrument cross check.</b>

<b>436</b> id 266	How can a pilot overcome a vertigo, encountered during a real or simulated instrument flight? 1. Establish and maintain an effective instrument cross-check. 2. Always believe the instruments; never trust your sense of feeling. 3. Ignore arising illusions. 4. Move the head sideways and back and forth to "shake-off" illusions.
<b>a</b>	1, 2, 3 and 4 are correct
<b>b</b>	1and 2 are correct, 3 and 4 are false
<b>c</b>	Only 4 is correct
<b>d</b>	<b>1, 2 and 3 are correct</b>

437 id 267	Dizziness and tumbling sensations, when making head movements in a tight turn, are symptoms of
a	"Oculogravic illusion"
b	"Nystagmus"
c	"Flicker-vertigo"
d	<b>"Pilot's vertigo"</b>
438 id 268	"Pilot's vertigo"
a	is the sensation to keep a rotation after completing a turn
b	<b>is the condition of dizziness and/or tumbling sensation caused by contradictory impulses to the central nervous system (CNS)</b>
c	is the sensation of climbing caused by a strong linear acceleration
d	announces the beginning of airsickness
439 id 269	What can a pilot do to avoid "Flicker vertigo" when flying in the clouds?
a	Engage the autopilot until breaking the clouds
b	Dim the cockpit lights to avoid reflections
c	<b>Switch strobe-lights off</b>
d	Fly straight and level and avoid head movements
440 id 270	What do you do, when you are affected by "pilot's vertigo"? 1. Establish and maintain an effective instrument cross-check. 2. Believe the instruments. 3. Ignore illusions. 4. Minimize head movements.
a	<b>1, 2, 3 and 4 are correct</b>
b	1, 2 and 3 are correct, 4 is false
c	1 and 2 are correct, 3 and 4 are false
d	Only 4 is false
441 id 271	A pilot is prone to get vertigo, as visibility is impaired (dust, smoke, snow). What is the correct action to prevent vertigo?
a	<b>Depend on the instruments</b>
b	Reduce rate of breathing until all symptoms disappear, then breathe normal again
c	Concentrate on the vertical speedometer
d	Depend on information from the semicircular canals of the inner ear, because those are the only ones giving correct information
442 id 272	The risk of getting a spatial disorientation is growing, when
a	the pilot is buckled too tight to his seat and cannot sense the attitude changes of the aircraft by his Seat-of-the-Pants-Sense
b	<b>there is contradictory information between the instruments and the vestibular organs</b>
c	the pilot is performing an effective instrument cross-check and is ignoring illusions
d	informations from the vestibular organ in the inner ear are ignored
443 id 420	The Seat-of-the-Pants Sense is including receptors in the
a	utricle and saccule
b	semicircular canals
c	<b>muscles, tendons and joints sensitive to the position and movement of body parts</b>
d	skin of the breech only

<b>444</b> id 424	<p>The proprioceptive senses (seat-of-the-pants sense) are important for motor coordination. They</p> <p><b>a are completely unreliable for orientation when flying in IMC</b></p> <p>b indicate the difference between gravity and G-forces</p> <p>c allow the pilot to determine the absolute vertical at flight condition</p> <p>d are important senses for flight training in IMC</p>
<b>445</b> id 425	<p>The so-called "Seat-of-the-Pants" sense is</p> <p><b>a not suitable for spatial orientation when outside visual references are lost</b></p> <p>b only to be used by experienced pilots with the permission to fly in IMC</p> <p>c useful for instrument and contact flight</p> <p>d the only sense a pilot can rely on, when flying in IMC</p>
<b>446</b> id 426	<p>Sensory input to the "Seat-of-the-Pants" sense is given by</p> <p>a pressure of the heart on the diaphragm</p> <p>b blood rushing into legs</p> <p>c acceleration of the stomach (nausea)</p> <p><b>d subcutaneous pressure receptors and kinesthetic muscle activity sensors</b></p>
<b>447</b> id 428	<p>Orientation in flight is accomplished by 1. eyes 2. utricle and saccule 3. semicircular canals 4. Seat-of-the-pants-Sense</p> <p><b>a 1, 2, 3 and 4 are correct</b></p> <p>b only 1 and 4 are correct</p> <p>c 2, 3 and 4 are correct, 1 is false</p> <p>d 2, 3 and 4 are false, only 1 is correct</p>
<b>448</b> id 432	<p>The "Seat-of-the-Pants-Sense"</p> <p>a can be used, if trained, to avoid disorientation in space</p> <p>b is a natural human instinct which will always indicate the correct body position in space</p> <p><b>c can give false inputs to body orientation when visual reference is lost</b></p> <p>d can be used as a reference for determining attitude when operating in visual and instrument meteorological conditions</p>
<b>449</b> id 437	<p>A pilot is used to land on small and narrow runways only. Approaching a larger and wider runway can lead to :</p> <p>a a flatter than normal approach with the risk of "ducking under"</p> <p>b a steeper than normal approach dropping low</p> <p><b>c an early or high "round out"</b></p> <p>d the risk to land short of the overrun</p>
<b>450</b> id 438	<p>The impression of an apparent movement of light when stared at for a relatively long period of time in the dark is called</p> <p>a "oculographic illusion"</p> <p>b "white out"</p> <p>c "oculogyral illusion"</p> <p><b>d "autokinesis"</b></p>

451 id 440	Which problem may occur, when flying in an environment of low contrast (fog, snow, darkness, haze)? Under these conditions it is:
	<ul style="list-style-type: none"> <li>a <b>difficult to estimate the correct speed and size of approaching objects</b></li> <li>b impossible to detect objects</li> <li>c no problem to estimate the correct speed and size of approaching objects</li> <li>d improbable to get visual illusions</li> </ul>
452 id 441	A pilot approaching an upslope runway
	<ul style="list-style-type: none"> <li>a is performing a steeper than normal approach, landing long</li> <li>b <b>may feel that he is higher than actual. This illusion may cause him to land short.</b></li> <li>c establishes a higher than normal approach speed</li> <li>d establishes a slower than normal approach speed with the risk of stalling out</li> </ul>
453 id 442	The area in front of a threshold descends towards the threshold. Possible danger is:
	<ul style="list-style-type: none"> <li>a approach is lower than normal and may result in a short landing</li> <li>b to drop far below the glide path</li> <li>c <b>approach is higher than normal and may result in a long landing</b></li> <li>d to misjudge the length of the runway</li> </ul>
454 id 444	What misjudgement may occur if an airplane is flying into fog, snow or haze?
	<ul style="list-style-type: none"> <li>a Objects will appear closer than they really are</li> <li>b <b>Objects seem to be farther away than in reality</b></li> <li>c Objects will appear bigger in size than in reality</li> <li>d Objects seem to move slower than in reality</li> </ul>
455 id 451	Approaches at night without visual references on the ground and no landing aids (e.g. VASIS) can make the pilot believe of being
	<ul style="list-style-type: none"> <li>a higher than actual altitude with the risk of overshooting</li> <li>b <b>higher than actual altitude with the risk of landing short ("ducking under")</b></li> <li>c lower than actual altitude with the risk of overshooting</li> <li>d lower than actual altitude with the risk of ducking under</li> </ul>
456 id 452	A pilot is used to land on wide runways only. When approaching a smaller and/or narrower runway, the pilot may feel he is at a
	<ul style="list-style-type: none"> <li>a greater height and the impression of landing short</li> <li>b lower than actual height with the tendency to overshoot</li> <li>c <b>greater height than he actually is with the tendency to land short</b></li> <li>d lower height and the impression of landing slow</li> </ul>
457 id 455	A pilot approaching a runway which is narrower than normal may feel he is at a greater height than he actually is. To compensate he may fly a
	<ul style="list-style-type: none"> <li>a higher than normal approach with the tendency to overshoot</li> <li>b compensatory glide path and land long</li> <li>c compensatory glide path and stall out</li> <li>d <b>flatter than normal approach with the tendency to undershoot</b></li> </ul>

<b>458</b> id 456	The proprioceptive senses ("Seat of-the-Pants-Sense")
	<ul style="list-style-type: none"> <li>a can neither be used for motor coordination in IMC and VMC</li> <li>b is a natural human instinct, always indicating the correct attitude</li> <li>c can be used, if trained, to avoid spatial disorientation in IMC</li> <li><b>d give wrong information, when outside visual reference is lost</b></li> </ul>
<b>459</b> id 460	What impression do you have when outside references are fading away (e.g. fog, darkness, snow and vapor)?
	<ul style="list-style-type: none"> <li>a Objects seem to be much bigger than in reality</li> <li>b Objects seem to be closer than in reality</li> <li><b>c It is difficult to determine the size and speed of objects</b></li> <li>d There is no difference compared with flying on a clear and sunny day</li> </ul>
<b>460</b> id 481	The most probable reason for spatial disorientation is
	<ul style="list-style-type: none"> <li>a to rely on instruments when flying in and out of clouds</li> <li>b the lack of attention to the vertical speed indicator</li> <li><b>c a poor instrument cross-check and permanently transitioning back and forth between instruments and visual references</b></li> <li>d to believe the attitude indicator</li> </ul>
<b>461</b> id 485	What should a pilot do if he has no information about the dimensions of the runway and the condition of the terrain underneath the approach? He should
	<ul style="list-style-type: none"> <li>a make a visual approach and call the tower for assistance</li> <li>b be aware that approaches over downsloping terrain will make him believe that he is higher than actual</li> <li><b>c make an instrument approach and be aware of the illusory effects that can be induced</b></li> <li>d be aware that approaches over water always make the pilot feel that he is lower than actual height</li> </ul>
<b>462</b> id 490	Flying a coordinated level turn will
	<ul style="list-style-type: none"> <li>a make the seat-of-the-pants sense feel a decreased pressure along the body's vertical axis</li> <li>b first give the impression of climb, then the impression of descent</li> <li>c make the blood being pooled in the head</li> <li><b>d make the body's pressure receptors feel an increased pressure along the body's vertical axis</b></li> </ul>
<b>463</b> id 491	Being pressed into the seat can cause illusions and/or false reactions in a pilot lacking visual contact to the ground, because this sensation
	<ul style="list-style-type: none"> <li>a corresponds with the sensation a pilots gets, when flying straight and level or starting a descent</li> <li><b>b corresponds with the sensation a pilot gets when starting a climb or performing a level turn</b></li> <li>c makes the pilot to pull up the nose to compensate for level flight</li> <li>d will not stimulate the "seat-of-the-pants" sense</li> </ul>
<b>464</b> id 492	Vertigo is the result of
	<ul style="list-style-type: none"> <li><b>a "Coriolis-effect"</b></li> <li>b "Oculogyral illusion"</li> <li>c "Autokinetic-illusion"</li> <li>d "Elevator illusion"</li> </ul>

<b>465</b> id 493	Which flight-maneuvre will most likely induce vertigo? Turning the head while
	<ul style="list-style-type: none"> <li>a flying straight and level</li> <li>b climbing</li> <li>c descending</li> <li><b>d banking</b></li> </ul>
<b>466</b> id 494	With "vertigo" the instrument-panel seems to tumble . This is due to
	<ul style="list-style-type: none"> <li>a conflicting information between the semicircular canals and the tympanic membrane</li> <li>b tuned resonance caused by vibration</li> <li><b>c the coriolis effect in the semicircular canals</b></li> <li>d oxygen deficiency</li> </ul>
<b>467</b> id 495	"Pilot's vertigo":
	<ul style="list-style-type: none"> <li>a a sudden loss of visual perception during flight due to multiple irritation of the utriculus and sacculus at the same time</li> <li>b the impression of flying straight and level while the aircraft is spinning</li> <li><b>c is a sensation of rotation during flight due to multiple irritation of several semicircular canals at the same time</b></li> <li>d the impression of climbing when banking</li> </ul>
<b>468</b> id 496	What is the name for the sensation of rotation occurring during flight and which is caused by multiple irritation of several semicircular canals at the same time?
	<ul style="list-style-type: none"> <li>a Sudden incapacitation.</li> <li><b>b "Pilot's" Vertigo.</b></li> <li>c "Seat-of-the-Pants" illusions.</li> <li>d Graveyard spin.</li> </ul>
<b>469</b> id 497	Without visual reference, what illusion could the pilot get, when he is stopping the rotation to recover from a spin? He will get the illusion of
	<ul style="list-style-type: none"> <li>a spinning into the same direction</li> <li><b>b spinning into the opposite direction</b></li> <li>c straight and level flight</li> <li>d climbing and turning into the original direction of the spin</li> </ul>
<b>470</b> id 498	Starting a coordinated level turn can make the pilot believe to
	<ul style="list-style-type: none"> <li>a descent</li> <li><b>b climb</b></li> <li>c turn into the opposite direction</li> <li>d increase the rate of turn into the same direction</li> </ul>
<b>471</b> id 499	When accelerating forward the otoliths in the utriculus/sacculus will
	<ul style="list-style-type: none"> <li>a give the illusion of banking</li> <li><b>b give the illusion of climbing (body tilting backwards, nose of the a/c going up)</b></li> <li>c give the illusion of straight and level flight</li> <li>d give the illusion of descending (body tilting downwards, or forwards, nose of the airplane going down)</li> </ul>

<b>472</b> id 500	A pilot, accelerating or decelerating in level flight may get:
	<ul style="list-style-type: none"> <li>a the illusion to turn</li> <li>b the feeling of rotation</li> <li><b>c the illusion of climbing or descending</b></li> <li>d the impression of stationary objects moving to the right or left</li> </ul>
<b>473</b> id 1659	To prevent vertigo in flight we should
	<ul style="list-style-type: none"> <li>a keep breathing normally</li> <li>b look towards the sides when we make a turn</li> <li>c breath deeply but control the respiratory frequency</li> <li><b>d not move the head suddenly while we are turning</b></li> </ul>
<b>474</b> id 1670	When stopping the rotation of a spin we have the sensation
	<ul style="list-style-type: none"> <li>a of the sharp dipping of the nose of the aircraft</li> <li>b of turning in the same direction</li> <li><b>c that we are starting a spin into the opposite direction</b></li> <li>d of the immediate stabilization of the aircraft</li> </ul>
<b>475</b> id 1671	When accelerating in level flight we could experience the sensation of a
	<ul style="list-style-type: none"> <li>a turn</li> <li>b descent</li> <li><b>c climb</b></li> <li>d spin</li> </ul>
<b>476</b> id 1779	During flight in IMC, the most reliable sense which should be used to overcome illusions is the:
	<ul style="list-style-type: none"> <li>a vestibular sense</li> <li>b "Seat-of-the-pants-Sense"</li> <li><b>c visual sense, interpreting the attitude indicator</b></li> <li>d visual sense by looking outside</li> </ul>
<b>477</b> id 1780	Spatial disorientation will be most likely to occur during flight:
	<ul style="list-style-type: none"> <li>a when flying in and out of clouds and the pilot maintains good instrument cross check</li> <li><b>b if the brain receives conflicting informations and the pilot does not believe the instruments</b></li> <li>c when flying in light rain below the ceiling</li> <li>d when flying in bright sunlight above a cloud layer</li> </ul>
<b>478</b> id 3626	Which of the following illusions are brought about by conflicts between the visual system and the vestibular system ? -1: Illusions concerning the attitude of the aircraft -2: Autokinetic illusion (fixed point viewed as moving) -3: Illusions when estimating the size and distance of objects -4 : Illusions of rotation
	<ul style="list-style-type: none"> <li><b>a 1,4</b></li> <li>b 2,3,4</li> <li>c 2</li> <li>d 3,4</li> </ul>

<b>479</b> id 3666	Autokinetic illusion is:
	<ul style="list-style-type: none"> <li><b>a an illusion in which a stationary point of light, if stared at for several seconds in the dark, may - without a frame of reference - appear to move</b></li> <li>b the sensation during a radial acceleration of seeing a fixed reference point moving into the opposite direction of the acceleration</li> <li>c a conflict between the visual system and bodily sensations</li> <li>d poor interpretation of the surrounding world</li> </ul>
<b>480</b> id 3669	With regard to illusions due to perceptive conflicts, it may be said that they:
	<ul style="list-style-type: none"> <li>a originate from a conflict between instrument readings and external visual perceptions</li> <li><b>b are mainly due to a sensory conflict concerning perception of the vertical and the horizontal between the vestibular and the visual system</b></li> <li>c are caused by the absence of internal visual cues exclusively</li> <li>d are caused by a conflictual disagreement concerning attitudinal perception between the various members of a crew</li> </ul>
<b>481</b> id 3918	Visual disturbances can be caused by: 1. hyperventilation 2. hypoxia 3. hypertension 4. fatigue
	<ul style="list-style-type: none"> <li><b>a 1, 2 and 4 are correct</b></li> <li>b 1, 2, 3 and 4 are correct</li> <li>c 1, 2 and 3 are correct</li> <li>d 2, 3 and 4 are correct</li> </ul>
<b>482</b> id 3919	Desorientation is more likely to occur when the pilot is: 1. flying in IMC 2. frequently changing between inside and outside references 3. flying from IMC into VMC 4. having a cold
	<ul style="list-style-type: none"> <li>a 2, 3 and 4 are correct</li> <li>b 1, 2 and 3 are correct</li> <li><b>c 1, 2 and 4 are correct</b></li> <li>d 1, 3 and 4 are correct</li> </ul>
<b>483</b> id 3920	Positive linear acceleration when flying in IMC may cause a false sensation of:
	<ul style="list-style-type: none"> <li>a vertigo</li> <li>b pitching down</li> <li>c apparent sideward movement of objects in the field of vision</li> <li><b>d pitching up</b></li> </ul>
<b>484</b> id 3921	Linear acceleration when flying straight and level in IMC may give the illusion of:
	<ul style="list-style-type: none"> <li>a spinning</li> <li>b descending</li> <li>c yawing</li> <li><b>d climbing</b></li> </ul>
<b>485</b> id 3922	Coriolis illusion, causing spatial disorientation is the result of:
	<ul style="list-style-type: none"> <li>a undergoing positive G</li> <li><b>b simultaneous head movements during aircraft manoeuvres</b></li> <li>c gazing in the direction of a flashing light</li> <li>d normal deterioration of the semicircular canals with age</li> </ul>



<b>486</b> id 3923	When turning in IMC , head movements should be avoided as much as possible. This is a prevention against:
	<ul style="list-style-type: none"> <li>a pressure vertigo</li> <li>b autokinesis</li> <li>c oculogyral illusion</li> <li><b>d coriolis illusion</b></li> </ul>
<b>487</b> id 3924	A pilot, trying to pick up a fallen object from the cockpit floor during a tight turn, experiences:
	<ul style="list-style-type: none"> <li>a autokinetic illusion</li> <li><b>b coriolis illusion</b></li> <li>c barotrauma</li> <li>d pressure vertigo</li> </ul>
<b>488</b> id 3926	When a pilot is starring at an isolated stationary light for several seconds in the dark he might get the illusion that:
	<ul style="list-style-type: none"> <li>a the colour of the light is varying</li> <li>b the size of the light is varying</li> <li>c the intensity of the light is varying</li> <li><b>d the light is moving</b></li> </ul>
<b>489</b> id 3927	When you stare at a single light against the dark (f.e. an isolated star) you will find the light appears to move after some time. This phenomenon is called:
	<ul style="list-style-type: none"> <li>a black hole illusion</li> <li><b>b autokinetic phenomenon</b></li> <li>c coriolis illusion</li> <li>d leans</li> </ul>
<b>490</b> id 3928	How is haze effecting your perception?
	<ul style="list-style-type: none"> <li><b>a Objects seem to be further away than in reality.</b></li> <li>b Objects will give better contrast.</li> <li>c Haze makes the eyes to focus at infinity</li> <li>d Objects seem to be closer than in reality.</li> </ul>
<b>491</b> id 3929	The 'Black hole' phenomenon occurs during approaches at night and over water, jungle or desert. When the pilot is lacking of visual cues other than those of the aerodrome there is an illusion of
	<ul style="list-style-type: none"> <li><b>a being too high and too far away, dropping low and landing short</b></li> <li>b being too close, landing long</li> <li>c climbing</li> <li>d being too low, flying a steeper approach than normal</li> </ul>
<b>492</b> id 3930	You fly VFR from your home base (runway width 27 m), to an international airport (runway width 45 m). On reaching your destination there is a risk of performing a:
	<ul style="list-style-type: none"> <li><b>a high approach with overshoot</b></li> <li>b high approach with undershoot</li> <li>c low approach with overshoot</li> <li>d low approach with undershoot</li> </ul>

<b>493</b> id 3931	<p>You fly VFR from your home base (runway width 45 m) to a small airfield (runway width 27 m). On reaching your destination there is a risk of performing a:</p> <ul style="list-style-type: none"> <li>a low approach with overshoot</li> <li>b high approach with overshoot</li> <li>c high approach with undershoot</li> <li><b>d low approach with undershoot</b></li> </ul>
<b>494</b> id 3932	<p>1. In case of conflicting information you can always trust your Seat- of-the-Pants- Sense. 2. In case of conflicting information between the sensory organs and the instruments you must believe the instruments.</p> <ul style="list-style-type: none"> <li><b>a 1 is false, 2 is correct</b></li> <li>b 1 and 2 are correct</li> <li>c 1 is correct, 2 is false</li> <li>d 1 and 2 are false</li> </ul>
<b>495</b> id 3933	<p>How can spatial disorientation in IMC be avoided? By</p> <ul style="list-style-type: none"> <li><b>a maintaining a good instrument cross check.</b></li> <li>b believing your body senses only.</li> <li>c moving the head into the direction of the resultant vertical.</li> <li>d looking outside whenever possible ignoring the attitude indicator.</li> </ul>
<b>496</b> id 3934	<p>Which procedure is recommended to prevent or overcome spatial disorientation?</p> <ul style="list-style-type: none"> <li>a Tilt your head to the side to get better informations from the semicircular canals.</li> <li><b>b Rely entirely on the indications of the flight instruments.</b></li> <li>c Rely on the Seat-of-the-Pants-Sense.</li> <li>d Get adapted to low levels of illumination before flying and use off-center vision all the time.</li> </ul>
<b>497</b> id 3935	<p>How can a pilot prevent spatial disorientation in flight?</p> <ul style="list-style-type: none"> <li><b>a Establish and maintain a good instrument cross check.</b></li> <li>b Always try to catch outside visual cues.</li> <li>c Rely on good situational awareness believing your natural senses.</li> <li>d Rely on the kinaesthetic sense.</li> </ul>
<b>498</b> id 3936	<p>If you are subjected to an illusion during night flying you should:</p> <ul style="list-style-type: none"> <li><b>a continue on instruments</b></li> <li>b dim the cockpit lighting</li> <li>c scan the surroundings</li> <li>d use your oxygen mask</li> </ul>
<b>499</b> id 3937	<p>If you are disorientated during night flying you must:</p> <ul style="list-style-type: none"> <li><b>a relay on instruments</b></li> <li>b look outside</li> <li>c descend</li> <li>d check your rate of breathing - do not breathe too fast</li> </ul>

## 40.2.3. Health and hygiene

### 40.2.3.1. Personal hygiene

<b>500</b> id 3696	Our body takes its energy from : 1: minerals 2: protein 3: carbonhydrates 4: vitamines
<b>a</b>	1,4
<b>b</b>	1,2,3,4
<b>c</b>	<b>2,3</b>
<b>d</b>	1,3

<b>501</b> id 3697	What is meant by metabolism ?
<b>a</b>	Information exchange
<b>b</b>	<b>The transformation by which energy is made available for the uses of the organism</b>
<b>c</b>	Transfer of chemical messages
<b>d</b>	Exchange of substances between the lung and the blood

<b>502</b> id 3698	One of the waste products of the metabolic process in the cell is :
<b>a</b>	fat
<b>b</b>	protein
<b>c</b>	sugar
<b>d</b>	<b>water</b>

<b>503</b> id 3699	The body loses water via: 1. the skin and the lungs 2. the kidneys
<b>a</b>	both are false
<b>b</b>	1 is correct and 2 is not correct
<b>c</b>	1 is not correct and 2 is correct
<b>d</b>	<b>1 and 2 are correct</b>

<b>504</b> id 6311	When flying with a cold you might primarily experience problems with:
<b>a</b>	<b>pain around the forehead</b>
<b>b</b>	loss of night vision
<b>c</b>	an increased heart rate
<b>d</b>	cramps in hands and feet

### 40.2.3.2. Common minor ailments

<b>505</b> id 1667	It is inadvisable to fly when suffering from a cold. The reason for this is:
<b>a</b>	<b>pain and damage to the eardrum can result, particularly during fast descents</b>
<b>b</b>	gentle descents at high altitude can result in damage to the ear drum
<b>c</b>	swollen tissue in the inner ear will prevent the air from ventilating through the tympanic membrane
<b>d</b>	swollen tissue in the Eustachian tube will cause permanent hearing loss

<b>506</b> id 1782	It is inadvisable to fly when suffering from a cold. The reason for this is:
	<ul style="list-style-type: none"> <li>a although the change in air pressure during a climb at lower altitudes is very small, it increases rapidly at high altitudes. If the tissue in the Eustachian tube of the ear is swollen, gentle descents at high altitude would result in damage to the ear drum</li> <li><b>b the tissue around the nasal end of the Eustachian tube is likely to be swollen thus causing difficulty in equalising the pressure within the middle ear and the nasal/throat area. Pain and damage to the eardrum can result, particularly during fast descents</b></li> <li>c swollen tissue in the inner ear will increase the rate of metabolic production resulting in hyperventilation</li> <li>d because it will seriously affect peripheral vision</li> </ul>
<b>507</b> id 3636	The following occurs in man if the internal body temperature increases to 38°C :
	<ul style="list-style-type: none"> <li>a apathy</li> <li><b>b impairment of physical and mental performance</b></li> <li>c considerable dehydration</li> <li>d nothing significant happens at this temperature. The first clinical signs only start to appear at 39°C</li> </ul>
<b>508</b> id 3637	Which of the following mechanisms regulate body temperature when exposed to extreme high environmental temperatures? -1 : Shivering -2 : Vasoconstriction of peripheral blood vessels -3 : Sweating -4 : Vasodilation of peripheral blood vessels
	<ul style="list-style-type: none"> <li>a 2,3</li> <li>b 1,3,4</li> <li><b>c 3,4</b></li> <li>d 1</li> </ul>
<b>509</b> id 3638	The following can be observed when the internal body temperature falls below 35°C :
	<ul style="list-style-type: none"> <li><b>a shivering, will tend to cease, and be followed by the onset of apathy</b></li> <li>b the appearance of intense shivering</li> <li>c mental disorders, and even coma</li> <li>d profuse sweating</li> </ul>
<b>510</b> id 3639	We can observe the following in relation to a state of hypothermia :
	<ul style="list-style-type: none"> <li>a a rapid fall in ambient temperature</li> <li>b a substantial increase in internal body temperature whereas peripheral temperature at the skin is stable</li> <li><b>c reasoning problems as soon as body temperature falls below 37°C</b></li> <li>d greater capacity for adaptation than in a hot atmosphere</li> </ul>
<b>511</b> id 3656	Which of the following statements are correct ? 1 Hypothermia affects physical and mental abilities. 2 Man has effective natural protection against intense cold. 3 Shivering makes it possible to combat the cold to a certain extent, but uses up a lot of energy 4 Disorders associated with hypothermia appear at a body temperature of less than 35°C
	<ul style="list-style-type: none"> <li>a 1,2,3</li> <li><b>b 1,3,4</b></li> <li>c 2,4</li> <li>d 2,3,4</li> </ul>

<b>512</b> id 3695	Exchange of gasses between the body and the environment takes place at the:
	<ul style="list-style-type: none"> <li>a central nervous system</li> <li>b heart</li> <li>c muscles</li> <li><b>d lungs</b></li> </ul>
<b>513</b> id 3940	Having a serious cold it is better not to fly, due to the extra risk of: 1. flatulence 2. pain in the ear during descent 3. pressure vertigo 4. pain in the nasal sinuses
	<ul style="list-style-type: none"> <li>a 1 and 2 are correct</li> <li><b>b 2,3 and 4 are correct</b></li> <li>c 1,3 and 4 are correct</li> <li>d 1,2 and 4 are correct</li> </ul>
<b>514</b> id 3941	Having a serious cold, you are going to fly. What can you expect:
	<ul style="list-style-type: none"> <li>a bends</li> <li><b>b pain in the sinuses</b></li> <li>c chokes</li> <li>d hypoxia</li> </ul>
<b>515</b> id 6354	A pilot has caught a cold. What may happen to his susceptibility to hypoxia?
	<ul style="list-style-type: none"> <li>a it will decrease due to the reduced level of bodily functions</li> <li><b>b it will increase due to the need to generate more oxygen which leads to a greater demand for oxygen</b></li> <li>c it will increase due to the reduction in lung capacity due to the cold</li> <li>d it will decrease because colder air is denser and has higher partial pressure</li> </ul>
<b>40.2.3.3. Problem areas for pilots</b>	
<b>516</b> id 98	Which of the following factors may have an influence on medical disqualification?
	<ul style="list-style-type: none"> <li>a High blood pressure only.</li> <li><b>b High and low blood pressure as well as a poor condition of the circulatory system.</b></li> <li>c Blood pressure problems cannot occur in aircrew because they always can be treated by in-flight medication.</li> <li>d Low blood pressure only.</li> </ul>
<b>517</b> id 457	When assessing an individuals risk in developing coronary artery disease, the following factors may contribute: 1.obesity 2.distress 3.smoking 4.family history
	<ul style="list-style-type: none"> <li><b>a 1, 2, 3 and 4 are correct</b></li> <li>b 2 and 3 are correct, 1 and 4 are false</li> <li>c Only 3 is correct, 1, 2 and 4 are false</li> <li>d 1, 2 and 3 are correct, 4 is false</li> </ul>
<b>518</b> id 1748	Noise induced hearing loss is influenced by
	<ul style="list-style-type: none"> <li>a the intensity of the noise but not its duration</li> <li>b the duration of a noise but not its intensity</li> <li>c the suddenness of onset of a noise</li> <li><b>d the duration and intensity of a noise</b></li> </ul>

519 id 1749	<p>To reduce the risk of coronary artery disease, exercise should be</p> <ul style="list-style-type: none"> <li><b>a double the resting heart rate for at least 20 minutes, three times a week</b></li> <li>b avoided since raising the heart rate shortens the life of the heart</li> <li>c double the resting heart rate for at least an hour, five times a week</li> <li>d triple the resting heart rate for 20 minutes, once a week</li> </ul>
520 id 1750	<p>Which of the following is most true?</p> <ul style="list-style-type: none"> <li>a Regular exercise is an impediment to losing weight since it increases the metabolic rate</li> <li><b>b Regular exercise is beneficial to general health, but the most efficient way to lose weight is by reducing caloric consumption</b></li> <li>c Regular exercise is beneficial to general health, and is the only effective way to lose weight</li> <li>d Regular exercise and reduction in caloric consumption are both essential in order to lose weight</li> </ul>
521 id 3684	<p>Which of the following statements about hyperthermia is correct ?</p> <ul style="list-style-type: none"> <li>a Performance is not impaired by an increase in body temperature to 40°C or more.</li> <li>b Vasodilation is the only regulant which is capable of reducing body temperature.</li> <li>c Evaporation is more effective when ambient humidity is high.</li> <li><b>d Complete adaption to the heat in a hot country takes about a fortnight.</b></li> </ul>
522 id 3901	<p>Visual acuity during flight at high altitudes can be affected by: 1. anaemia 2. smoking in the cockpit 3. carbon monoxide poisoning 4. hypoxia</p> <ul style="list-style-type: none"> <li>a 1,3 and 4 are correct</li> <li>b 1,2 and 3 are correct</li> <li>c 2,3 and 4 are correct</li> <li><b>d 1, 2, 3 and 4 are correct</b></li> </ul>
523 id 3912	<p>Conductive hearing loss can be caused by: 1. damage to the ossicles in the middle ear caused by infection or trauma 2. a damage of the auditory nerve 3. an obstruction in the auditory duct 4. a ruptured tympanic membrane</p> <ul style="list-style-type: none"> <li>a 1,2 and 3 are correct, 4 is false</li> <li>b 2,3 and 4 are correct, 1 is false</li> <li><b>c 1,2,3 and 4 are correct</b></li> <li>d 1,3 and 4 are correct, 2 is false</li> </ul>
524 id 3913	<p>Noise induced hearing loss (NIHL) is caused by:</p> <ul style="list-style-type: none"> <li>a pressure differences on both sides of the eardrum</li> <li>b a blocked Eustachian tube</li> <li><b>c damage of the sensitive membrane in the cochlea due to overexposure to noise</b></li> <li>d reduced mobility of the ossicles</li> </ul>
525 id 6313	<p>Noise Induced Hearing Loss (NIHL) is:</p> <ul style="list-style-type: none"> <li>a caused by damage to the eardrum or ossicles by noise above 90 dB</li> <li>b caused by hearing deterioration as part of the process of ageing</li> <li>c governed by the intensity of noise above the 103 dB level</li> <li><b>d governed by intensity and duration of noise in excess of 90 dB</b></li> </ul>

#### 40.2.3.4. Intoxication

<b>526</b> id 454	Alcohol, even when taken in minor quantities
<ul style="list-style-type: none"><li>a will have no effect at all</li><li>b will stimulate the brain, making the pilot resistant to hypoxia</li><li><b>c can make the brain cells to be more susceptible to hypoxia</b></li><li>d may improve the mental functions, so that the symptoms of hypoxia are much better to be identified</li></ul>	
<b>527</b> id 459	Concerning flying and blood alcohol content the following statement is correct:
<ul style="list-style-type: none"><li>a flying with up to 0.15 % blood alcohol</li><li>b flying with up to 0.05 % blood alcohol</li><li><b>c no flying under the influence of alcohol</b></li><li>d flying with up to 0.08 % blood alcohol is safe, since driving is safe up to this limit</li></ul>	
<b>528</b> id 464	The metabolism of alcohol
<ul style="list-style-type: none"><li>a is quicker when used to it</li><li><b>b is a question of time</b></li><li>c can be accelerated even more by coffee</li><li>d can be influenced by easy to get medication</li></ul>	
<b>529</b> id 482	Concerning the effects of drugs and pilot's performance
<ul style="list-style-type: none"><li><b>a the primary and the side effects have to be considered</b></li><li>b the side effects only have to be considered</li><li>c medication has no influence on pilot's performance</li><li>d only the primary effect has to be considered; side effects are negligible</li></ul>	
<b>530</b> id 509	When drugs against sleep disorders and/or nervousness have been taken and the pilot intends to fly, attention has to be paid to
<ul style="list-style-type: none"><li><b>a the effect they have on reaction time and perceptual awareness</b></li><li>b the effect they have on hearing</li><li>c the fact that there is no difference in the quality of sleep produced under the influence of those drugs compared to normal drug-free sleep</li><li>d schedule only those pilots, who show no reactions to these medications</li></ul>	
<b>531</b> id 510	Drugs against allergies (antihistamines), when taken by an aviator can cause the following undesirable effects: 1. Drowsiness, dizziness 2. Dry mouth 3. Headaches 4. Impaired depth perception 5. Nausea
<ul style="list-style-type: none"><li>a only 1 is correct</li><li>b only 3, 4 and 5 are correct</li><li>c 2, 3 and 4 are correct</li><li><b>d 1, 2, 3, 4 and 5 are correct</b></li></ul>	

532 id 511	<p>The consumption of medicines or other substances may have consequences on qualification to fly for the following reasons: 1. The disease requiring a treatment may be cause for disqualification. 2. Flight conditions may modify the reactions of the body to a treatment. 3. Drugs may cause adverse side effects impairing flight safety. 4. The effects of medicine do not necessarily immediately disappear when the treatment is stopped.</p> <p>a 3 and 4 are false, 1 and 2 are correct.</p> <p>b 1, 2 and 3 are correct, 4 is false</p> <p><b>c 1, 2, 3 and 4 are correct</b></p> <p>d Only 2 is false.</p>
533 id 513	<p>Cigarette smoking has particular significance to the flyer, because there are long-term and short-term harmful effects. From cigarette smoking the pilot can get:</p> <p>a a mild carbon dioxide poisoning increasing the pilot's tolerance to hypoxia</p> <p><b>b a mild carbon monoxide poisoning decreasing the pilot's tolerance to hypoxia</b></p> <p>c a mild carbon monoxide poisoning increasing the pilot's tolerance to hypoxia</p> <p>d a suppressed desire to eat and drink</p>
534 id 514	<p>A pilot who smokes will lose some of his capacity to transport oxygen combined with hemoglobin. Which percentage of his total oxygen transportation capacity would he give away when he smokes one pack of cigarettes a day?</p> <p>a 0.5 - 2%</p> <p><b>b 5 - 8%</b></p> <p>c 12 - 18%</p> <p>d 20 - 25%</p>
535 id 515	<p>Flying at pressure altitude of 10 000 ft, a pilot, being a moderate to heavy smoker, has an oxygen content in the blood equal to an altitude</p> <p>a lower than 10 000 FT</p> <p>b of 10 000 FT</p> <p><b>c above 10 000 FT</b></p> <p>d of 15000 FT when breathing 100% oxygen</p>
536 id 516	<p>Which of the following applies when alcohol has been consumed?</p> <p>a Small amounts of alcohol increase visual performance</p> <p>b Drinking coffee at the same time will increase the elimination rate of alcohol</p> <p><b>c Even after the consumption of small amounts of alcohol, normal cautionary attitudes may be lost</b></p> <p>d Acute effects of alcohol cease immediately when 100% oxygen is taken</p>
537 id 517	<p>Alcohol, when taken simultaneously with drugs, may</p> <p><b>a intensify the effects of the drugs</b></p> <p>b compensate for side effects of drugs</p> <p>c show undesired effects only during night flights</p> <p>d increase the rate of alcohol elimination from the blood</p>



<b>538</b> id 518	Alcohol metabolism (elimination rate)
	<ul style="list-style-type: none"> <li>a depends on whether you get some sleep in between drinks</li> <li>b is approx. 0.3% per hour</li> <li><b>c is approx. 0.015% per hour and cannot be expedited</b></li> <li>d definitely depends on the amount and composition of food which has been eaten</li> </ul>
<b>539</b> id 1649	Carbon monoxide, a product of incomplete combustion, is toxic because
	<ul style="list-style-type: none"> <li><b>a it competes with oxygen in its union with haemoglobin</b></li> <li>b it prevents the absorption of food from the digestive tract</li> <li>c it prevents the excretion of catabolites in the kidneys</li> <li>d it disturbs gaseous diffusion at the alveoli capillary membrane</li> </ul>
<b>540</b> id 1661	The rate of absorption of alcohol depends on many factors. However, the rate of metabolism or digestion of alcohol in the body is relatively constant. It is about
	<ul style="list-style-type: none"> <li>a 0,2 - 0,25 mg % per hour</li> <li>b 0,02 - 0,05 mg % per hour</li> <li><b>c 0,01 - 0,015 mg % per hour</b></li> <li>d 0,3 - 0,35 mg % per hour</li> </ul>
<b>541</b> id 1662	A slight lack of coordination which can make it difficult to carry out delicate and precise movements occurs when the level of alcohol in the blood is exceeding
	<ul style="list-style-type: none"> <li>a 0.15 % blood alcohol</li> <li>b 0.1 % blood alcohol</li> <li><b>c 0.05 % blood alcohol</b></li> <li>d 0.2 % blood alcohol</li> </ul>
<b>542</b> id 1663	The carcinogen (a substance with the ability to produce modifications in cells which develop a cancer) in the bronchi of the lungs is
	<ul style="list-style-type: none"> <li><b>a tar</b></li> <li>b nicotine</li> <li>c carbon monoxide</li> <li>d lead</li> </ul>
<b>543</b> id 1664	One of the substances present in the smoke of cigarettes can make it significantly more difficult for the red blood cells to transport oxygen and as a consequence contributes to hypoxia. Which substance are we referring to?
	<ul style="list-style-type: none"> <li><b>a Carbon monoxide</b></li> <li>b Carbonic anhydride</li> <li>c Tar</li> <li>d Carbon dioxide</li> </ul>
<b>544</b> id 1668	The so-called Coriolis effect (a conflict in information processing in the brain) in spatial disorientation occurs:
	<ul style="list-style-type: none"> <li>a on stimulating the cochlea intensely</li> <li>b on stimulating the saccule and the utricle of the inner ear</li> <li><b>c on stimulating several semicircular canals simultaneously</b></li> <li>d when no semicircular canal is stimulated</li> </ul>

545 id 1781	The chemical substance responsible for addiction to tobacco is
<ul style="list-style-type: none"> <li>a tar</li> <li>b carbon monoxide</li> <li><b>c nicotine</b></li> <li>d the combination of nicotine, tar and carbon monoxide</li> </ul>	
546 id 2155	A large number of medical preparations can be bought without a doctor's prescription. In relation to using these preparations, which of the following is correct:
<ul style="list-style-type: none"> <li>a The side effects of these types of preparations are sufficiently negligible as to be ignored by pilots</li> <li>b They have no side effects which would give problems to a pilot during flight</li> <li><b>c A pilot using any of these preparations should get professional advice from a flight surgeon if he intends to fly and self-medicate at the same time</b></li> <li>d They will cause a condition of over-arousal</li> </ul>	
547 id 2170	Carbon monoxide is always present in the exhaust gases of engines. If a pilot is exposed to carbon monoxide, which of the following responses is correct?
<ul style="list-style-type: none"> <li>a Carbon monoxide is easily recognised by odour and taste.</li> <li><b>b A short exposure to relatively high concentrations of carbon monoxide can seriously affect a pilot's ability to operate an aircraft.</b></li> <li>c Carbon monoxide can only affect pilots if they are exposed to them for a long period of time.</li> <li>d When exposed to carbon monoxide for a long period of time, the body will adapt to it and no adverse physical effects are experienced</li> </ul>	
548 id 3960	Which statement is correct regarding alcohol in the human body?
<ul style="list-style-type: none"> <li><b>a Judgement and decision making can be affected even by a small amount of alcohol.</b></li> <li>b A small amount of alcohol increases visual acuity.</li> <li>c An increase of altitude decreases the adverse effect of alcohol.</li> <li>d When drinking coffee, the human body metabolizes alcohol at a faster rate than normal.</li> </ul>	
549 id 3961	Which statement is correct? 1. Smokers have a greater chance of suffering from coronary heart disease 2. Smoking tobacco will raise the individuals physiological altitude during flight 3. Smokers have a greater chance for lung cancer
<ul style="list-style-type: none"> <li>a 2 and 3 are correct, 1 is false</li> <li>b 1 and 2 are correct, 3 is false</li> <li>c 1 and 3 are correct, 2 is false</li> <li><b>d 1,2 and 3 are correct</b></li> </ul>	
550 id 3962	Smoking cigarettes reduces the capability of the blood to carry oxygen. This is because:
<ul style="list-style-type: none"> <li>a carbon monoxide in the smoke of cigarettes assists diffusion of oxygen in the alveoli</li> <li><b>b hemoglobin has a greater affinity for carbon monoxide than it has for oxygen</b></li> <li>c carbon monoxide increases the partial pressure of oxygen in the alveoli</li> <li>d the smoke of one cigarette can cause an obstruction in the respiratory tract</li> </ul>	

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**551** | CO (carbon monoxide) present in the smoke of cigarettes can lead to: 1. reduction  
id 3963 of time of usefull consciousness 2. hypoxia at a much lower altitude than normal

- a** 1 and 2 are both false
- b** 1 is correct, 2 is false
- c** 1 is false, 2 is correct
- d 1 and 2 are both correct**

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**552** | Carbon monoxide in the human body can lead to: 1. loss of muscular power 2.  
id 3964 headache 3. impaired judgement 4. pain in the joints 5. loss of consciousness

- a** 2 and 3 are correct, 1 is false
- b** 1, 2 and 4 are correct
- c 1, 2 , 3 and 5 are correct**
- d** 1, 2, 3, 4 are correct

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**553** | Adverse effects of carbon monoxide increase as:  
id 3965

- a** air pressure increases
- b** altitude decreases
- c altitude increases**
- d** relative humidity decreases

#### 40.2.3.5. Incapacitation

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**554** | What is meant by the term "Incapacitation"?  
id 6310

- a** The effect of gastro – intestinal upset
- b The gradual or sudden loss of a crew members ability to function**
- c** When situational awareness of the crew is too low
- d** The lacking skill of an inexperienced pilot

## 40.3. Basic aviation psychology

### 40.3.1. Human information processing

#### 40.3.1.1. Attention and vigilance

555 id 723	Concentration is essential for pilots.  a It only takes a little willpower to increase one's capacity of concentration without limits <b>b However, capacity of concentration is limited</b> c Vigilance is all that is required to be attentive d All intellectual processes, including very routined ones, make demands on resources and therefore on one's concentration
556 id 1658	The ability of detecting relevant information which is not presented in an actively monitored input channel is known as  a perception <b>b attention</b> c sensation d appreciation
557 id 1695	The human information processing system is highly efficient compared to computers because of its  a speed <b>b flexibility</b> c working memory capacity d independancy from attention
558 id 1701	The 'cocktail party effect' is  a the ability to drink too much at social gathering <b>b the ability to pick up relevant information unintentionally</b> c the tendency to believe information that reinforces our mental model of the world d the tendency not to perceive relevant information
559 id 1705	Which of the following tasks are possible to do simultaneously without mutual interference?  a Read and listen attentively. b Listen attentively and solve a problem. c Talk and rehearse a frequency in working memory. <b>d Maintain manual straight and level flight and solve a problem.</b>
560 id 1753	A selective attentional mechanism is required  a because of the limitations of the sense organs b because the capacity of the long term memory is limited <b>c because of the limited capacity of the central decision maker and working memory</b> d because of limitations in our store of motor programmes

<b>561</b> id 2128	According to Wicken's theory, the human brain has:
	<ul style="list-style-type: none"> <li>a processing capabilities which function at peak level when different tasks call for the same resources</li> <li>b unlimited information-processing resources</li> <li>c cognitive resources which are centered on action</li> <li><b>d different reservoirs of resources depending on whether one is in the information-gathering, information-processing or action phase</b></li> </ul>
<b>562</b> id 2129	The available cognitive resources of the human brain:
	<ul style="list-style-type: none"> <li><b>a are limited and make it impossible to perform two attentional tasks at the same time</b></li> <li>b are limited but make it possible to easily perform several tasks at the same time</li> <li>c are virtually unlimited</li> <li>d allow for twin-tasks operation without any loss of effectiveness</li> </ul>
<b>563</b> id 2130	Mental schemes correspond to:
	<ul style="list-style-type: none"> <li>a daily planning of probable dangerous situations</li> <li>b the memorisation of regulatory procedures associated with a particular situation</li> <li>c memorised procedures which develop and change rapidly during change-over to a new machine</li> <li><b>d memorised representations of the various procedures and situations which can be reactivated by the pilot at will</b></li> </ul>
<b>564</b> id 2131	The acquisition of expertise comprises three stages ( Anderson model):
	<ul style="list-style-type: none"> <li>a associative, autonomous and expert</li> <li>b cognitive, associative and knowledge</li> <li><b>c cognitive, associative and autonomous</b></li> <li>d automatic, cognitive and knowledge</li> </ul>
<b>565</b> id 2132	A pilot can be described as being proficient, when he/she:
	<ul style="list-style-type: none"> <li>a knows how to invest the maximum resources in the automation of tasks in real time</li> <li>b is able to reduce his/her arousal to a low level during the entire flight</li> <li><b>c has automated a large part of the necessary flight deck routine operations in order to free his/her cognitive resources</b></li> <li>d is capable of maintaining a high level of arousal during a great bulk of the flight</li> </ul>
<b>566</b> id 3046	Which of the following are the most favourable solutions to manage phases of reduced or low vigilance (hypovigilance)? 1. Healthy living 2. Use of amphetamines 3. Reducing the intensity of the light 4. Organising periods of rest during the flight
	<ul style="list-style-type: none"> <li><b>a 3,4</b></li> <li>b 1,2</li> <li>c 1,3</li> <li><b>d 1,4</b></li> </ul>
<b>567</b> id 3047	What are main signs indicating the loss of vigilance ? 1. Decrease in sensory perception 2. Increase in selective attention 3. Sensation of muscular heaviness 4. Decrease in complacency
	<ul style="list-style-type: none"> <li><b>a 2,4</b></li> <li>b 1,4</li> <li>c 2,3</li> <li><b>d 1,3</b></li> </ul>

<b>568</b> id 3048	What is "divided attention"?
	<ul style="list-style-type: none"> <li>a Difficulty of concentrating on a particular objective</li> <li>b Ease of concentrating on a particular objective</li> <li><b>c Alternative management of several matters of interest</b></li> <li>d The adverse effect of motivation which leads to one's attention being dispersed</li> </ul>
<b>569</b> id 3049	Which of the following statements concerning hypovigilance is correct ? Hypovigilance :
	<ul style="list-style-type: none"> <li>a essentially occurs several minutes after the intense take-off phase</li> <li><b>b may occur at any moment of the flight</b></li> <li>c tends to occur at the end of the mission as a result of a relaxation in the operators' attention</li> <li>d only affects certain personality types</li> </ul>
<b>570</b> id 3093	What are the main factors which bring about reduced or low vigilance (hypovigilance) ? 1. The monotony of the task 2. Tiredness, the need for sleep 3. A lack of stimulation 4. Excessive stress
	<ul style="list-style-type: none"> <li>a 3,4</li> <li>b 2,4</li> <li>c 1,3</li> <li><b>d 1,2,3</b></li> </ul>
<b>571</b> id 3100	With regard to the level of automation of behaviours in the attention mechanism, we know that :
	<ul style="list-style-type: none"> <li>a the more behaviour is automated, the more it requires attention and the more it frees resources</li> <li><b>b the more behaviour is automated, the less it requires conscious attention and thus the more it frees mental resources</b></li> <li>c the more behaviour is automated, the more it requires attention and the less it frees resources</li> <li>d the less behaviour is automated, the less it requires attention and the more it frees resources</li> </ul>
<b>572</b> id 3101	What are the various factors which guide attention ? 1. The level of automation of behaviour 2. Response time 3. The salience of the information 4. Expectations
	<ul style="list-style-type: none"> <li>a 2,3,4</li> <li>b 1,4</li> <li>c 1,2</li> <li><b>d 1,3,4</b></li> </ul>
<b>573</b> id 3621	If a pilot has to perform two tasks requiring the allocation of cognitive resources :
	<ul style="list-style-type: none"> <li>a the only way of not seeing performance tail off is to switch to rules-based mode for the two tasks</li> <li>b a person reaches his limits as from simultaneous tasks, and performance will then tail off</li> <li>c the only way of not seeing performance tail off is to switch to knowledge-based mode for the two tasks</li> <li><b>d the sharing of resources causes performance on each task to be reduced</b></li> </ul>

574 id 4031	<p>Check the following statements: 1. The first information received determines how subsequent information will be evaluated. 2. If one has made up one's mind, contradictory information may not get the attention it really needs. 3. With increasing stress, channelizing attention is limiting the flow of information to the central decision maker (CNS).</p> <p><b>a 1, 2 and 3 are correct</b></p> <p>b 1 and 3 are correct</p> <p>c 1 and 2 are correct</p> <p>d 2 and 3 are correct</p>
575 id 4032	<p>In an abnormal situation the pilot has an apparently correct explanation for the problem. The chance that he/she now ignores or devalues other relevant information, not fitting into his/her mental picture is:</p> <p>a decreasing</p> <p>b the same, no matter if he/she has already made up his/her mind</p> <p>c not applicable with old and experienced pilots</p> <p><b>d increasing</b></p>
576 id 4034	<p>Many pilots think up systems to deal with affairs so they don't have to think up every time what they have to do.</p> <p><b>a this has to be positively appreciated for it increases consistency in action</b></p> <p>b this is dangerous for every situation is different</p> <p>c this has to be rejected for the company draws the rules and the procedures they have to comply with</p> <p>d this has to be advised against for it reduces flexibility at a moment a problem has to be solved by improvisation.</p>
577 id 6322	<p>An ideal professional pilot is in his behaviour:</p> <p>a goal directed rather than person oriented</p> <p>b person directed rather than goal oriented</p> <p>c neither person or goal oriented</p> <p><b>d both person and goal oriented</b></p>
578 id 6337	<p>As a pilot's workload is increased, what happens to his performance level?</p> <p>a The qualitative overload level is easily reached</p> <p>b More information is by-passed due to the focusing of attention</p> <p><b>c The standard of performance increases until an optimum level of workload and performance is achieved</b></p> <p>d The standard of performance decreases rapidly due to the previously low level of arousal</p>
579 id 6355	<p>What is the relationship between performance and arousal?</p> <p><b>a performance is degraded by both high and low arousal</b></p> <p>b performance is not significantly affected by arousal level</p> <p>c performance is degraded by under – arousal and improved by high arousal</p> <p>d performance is improved by under – arousal and degraded by high arousal</p>

<b>580</b> id 6384	Regarding arousal, which of the following statements is wrong?
<b>a</b>	A very low level of arousal can be dangerous, since you will be less alert during flight
<b>b</b>	<b>A medium level of arousal can be dangerous, since you have little spare mental capacity in this situation</b>
<b>c</b>	A very high level of arousal will always lead to too quick and timely decisions, since you are very alert
<b>d</b>	A low level of arousal is often accompanied by low body temperature

#### 40.3.1.2. Perception

<b>581</b> id 1655	The first stage in the information process is
<b>a</b>	the recognition of information
<b>b</b>	perception
<b>c</b>	selective attention
<b>d</b>	<b>sensory stimulation</b>
<b>582</b> id 1704	Our mental model of the world is based
<b>a</b>	entirely on past experiences
<b>b</b>	entirely on the sensory information we receive
<b>c</b>	<b>on both our past experiences and the sensory information we receive</b>
<b>d</b>	on both our past experiences and our motor programmes
<b>583</b> id 2159	Conscious perception
<b>a</b>	relates to the correct recognition of colours
<b>b</b>	relies upon the development of intuition
<b>c</b>	involves the transfer of information from the receptor to the brain only
<b>d</b>	<b>is a mental process involving experience and expectations</b>
<b>584</b> id 2360	Which of the following provides the basis of all perceptions?
<b>a</b>	The aural or visual significance attributed in long term memory.
<b>b</b>	The aural or visual significance attributed in short term memory.
<b>c</b>	<b>The intensity of the stimuli.</b>
<b>d</b>	The separation of figure and background.
<b>585</b> id 2361	The "gestalt laws" formulates :
<b>a</b>	basic principles governing the relationship between stress and performance
<b>b</b>	<b>basic principles governing how objects are mentally organized and perceived</b>
<b>c</b>	basic principles governing the effects of habit and experience
<b>d</b>	basic principles regarding to the relationship between motivation and performance
<b>586</b> id 2873	In the absence of external reference points, the sensation that the vehicle in which you sitting is moving when it is in fact the vehicle directly alongside which is moving is called :
<b>a</b>	cognitive illusion
<b>b</b>	autokinetic illusion
<b>c</b>	<b>illusion of relative movement</b>
<b>d</b>	somato-gravic illusion



587 id 3099	What is the main adverse effect of expectations in the perception mechanism ?
	<ul style="list-style-type: none"> <li>a <b>Expectations often guide the focus of attention towards a particular aspect, while possible alternates are neglected</b></li> <li>b They always lead to routine errors</li> <li>c The unconscious mechanism of attention leads to focus on all relevant information</li> <li>d The attention area is enlarged, thus it will lead to an uncertainty in regard to necessary decisions</li> </ul>
588 id 3667	Illusions of interpretation (cognitive illusions) are :
	<ul style="list-style-type: none"> <li>a due mainly to a conflict between the various sensory systems</li> <li>b <b>associated with the task of mental construction of the environment</b></li> <li>c due mainly to a poor interpretation of instrumental data</li> <li>d solely induced in the absence of external reference points</li> </ul>
589 id 6250	A sudden change from climb to straight and level flight can give you an illusion of:
	<ul style="list-style-type: none"> <li>a tumbling backwards</li> <li>b a nose up attitude</li> <li>c turning to the left</li> <li>d <b>a nose low attitude</b></li> </ul>
590 id 6309	The common illusion created by linear acceleration or deceleration is:
	<ul style="list-style-type: none"> <li>a a banking sensation due to disturbances in the fluid circulation in the inner ear</li> <li>b a feeling that the aircraft has started to pitch up when the aircraft decelerates, causing an automatic attempt to push the nose down</li> <li>c <b>a pitch up feeling when the aircraft accelerates</b></li> <li>d a combined pitch up and banking sensations</li> </ul>
591 id 6316	If the pilot of an aircraft approaches a runway that is wider than normal, one of the possible consequences could be that:
	<ul style="list-style-type: none"> <li>a He would choose a visual touch down point too far into the runway</li> <li>b He would flare at a too low altitude</li> <li>c <b>The aircraft would touch down after he expects to</b></li> <li>d He would touch down with excess speed</li> </ul>
592 id 6325	What effect does haze have on the abilities to see traffic or terrain features during flight?
	<ul style="list-style-type: none"> <li>a <b>Haze creates the illusion of being at a greater distance than actual from the runway and causes pilots to fly a lower approach</b></li> <li>b Haze makes darker objects look closer and brighter objects look like they are further away</li> <li>c Haze causes the eyes to focus at infinity making terrain features harder to see</li> <li>d The eyes tend to overwork in haze and do not detect relative movement easily</li> </ul>
593 id 6328	You are carrying out a visual approach to a runway which slopes upwards away from the touchdown end. What is the main risk in this case?
	<ul style="list-style-type: none"> <li>a Landing heavy due to an apparent increase in runway width</li> <li>b <b>Landing short due to over-correcting for an apparent height increase</b></li> <li>c Landing long due to over-correcting for an apparent height decrease</li> <li>d Landing heavy due to an apparent decrease in runway width</li> </ul>

<b>594</b> id 6334	Vertigo can be brought on by:
	<ul style="list-style-type: none"> <li><b>a disease, accelerations, pressure changes and flashing lights</b></li> <li>b accelerations and flashing lights</li> <li>c disease only</li> <li>d accelerations and pressure changes</li> </ul>
<b>595</b> id 6339	What are the best visual cues for height during the round out?
	<ul style="list-style-type: none"> <li>a velocity and the colour of passing objects</li> <li><b>b apparent speed and texture of ground objects</b></li> <li>c the horizon with respect to objects on the windscreen</li> <li>d horizon relative to the aircraft nose</li> </ul>
<b>596</b> id 6352	Which of the following statements about alcohol is true?
	<ul style="list-style-type: none"> <li>a A blood alcohol level of 0.05% leads to unconsciousness</li> <li>b A unit of alcohol is equal to 50 ml of pure alcohol</li> <li>c A few drinks can make a person sleep better</li> <li><b>d Alcohol will lower the tolerance for hypoxia</b></li> </ul>
<b>597</b> id 6353	If runway slopes downwards, what is a pilot is likely to do:
	<ul style="list-style-type: none"> <li>a make an approach with too low speed</li> <li>b land short</li> <li>c make a shallow approach</li> <li><b>d land long</b></li> </ul>
<b>598</b> id 6361	A sloping cloud formation, an obscured horizon and a dark scene spread with ground lights and stars can create an illusion known as:
	<ul style="list-style-type: none"> <li><b>a False horizon</b></li> <li>b Coriolis illusion</li> <li>c Autokinesis</li> <li>d Elevator illusion</li> </ul>
<b>599</b> id 6364	Suppose you make an IMC go-around in a high-speed. Which of the following illusions are you likely to experience?
	<ul style="list-style-type: none"> <li>a Nose down attitude</li> <li>b Coriolis force</li> <li><b>c Nose up attitude</b></li> <li>d Autokinesis</li> </ul>
<b>600</b> id 6365	Suppose you make an approach to a runway which is narrower than standard. Which of the following errors are you likely to commit?
	<ul style="list-style-type: none"> <li>a Initiate a flare too early</li> <li><b>b Initiate a flare too late</b></li> <li>c Not following the VASIS</li> <li>d Fly with a too high approach speed, as a narrow runway requires lower speed</li> </ul>

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- 601** Illusions can often be experienced during flight. One such illusion is created by  
id 6391 strong forward linear acceleration. This phenomenon is called:
- a Autokinesis
  - b Somatogravic or oculogravic**
  - c Coriolis
  - d Oculogyral or leans

#### 40.3.1.3. Memory

- 
- 602** The maximum number of unrelated items that can be stored in working memory is:  
id 423
- a about 30 items
  - b very limited - only 3 items
  - c about 7 items**
  - d unlimited

- 
- 603** Long-term memory is an essential component of the pilot's knowledge and  
id 726 expertise.
- a Long-term memory stores knowledge on a temporary basis
  - b The capacity of long-term memory is limited
  - c It is desirable to pre-activate knowledge stored in long-term memory to have it available when required**
  - d The recovery of information from long-term memory is immediate and easy

- 
- 604** The capacity of the short-term memory is  
id 1656
- a unlimited
  - b very limited - only one item
  - c about 30 items
  - d about 7 items**

- 
- 605** Information stays in the short-term memory  
id 1657
- a less than 1 second
  - b about 20 seconds**
  - c from 5 to 10 minutes
  - d around 24 hours

- 
- 606** Motor programmes are:  
id 1696
- a rules that enable us to deal with preconceived situations
  - b rules that enable us to deal with novel situations
  - c stored routines that enable patterns of behaviour to be executed without continuous conscious control**
  - d stored routines that enable patterns of behaviour to be executed only under continuous conscious control

- 
- 607** Working memory enables us, for example,  
id 1697
- a to remember our own name
  - b to store a large amount of visual information for about 0.5 seconds
  - c to ignore messages for other aircraft
  - d to remember a clearance long enough to write it down**

<b>608</b> id 1700	In the short-term-memory, information is stored for approximately
	<ul style="list-style-type: none"> <li><b>a 20 seconds</b></li> <li>b 5 minutes</li> <li>c 1 hour</li> <li>d a couple of days</li> </ul>
<b>609</b> id 2093	Working memory :
	<ul style="list-style-type: none"> <li>a varies considerably in size between an expert pilot and a novice pilot</li> <li>b is unlimited in size</li> <li>c is unlimited in duration</li> <li><b>d is sensitive to interruptions which may erase all or some of its content</b></li> </ul>
<b>610</b> id 3619	The main limit(s) of long-term memory is (are):
	<ul style="list-style-type: none"> <li>a the data storage time</li> <li>b the quantity of data which may be stored</li> <li>c the instantaneous inputting in memory of all information collected during the day, which comes to saturate it</li> <li><b>d Data retrieval as a result from a loss of access to the stored information</b></li> </ul>
<b>611</b> id 3620	What are the main limits of short-term memory ? It is : -1 : very sensitive to interruptions and interference -2 : difficult to access -3 : limited in size -4 : subject to a biochemical burn-in of information
	<ul style="list-style-type: none"> <li>a 1,2 ,3</li> <li><b>b 1,3 ,4</b></li> <li>c 2 ,3</li> <li>d 2,4</li> </ul>
<b>612</b> id 3664	Which of the following characteristics apply to short-term memory ? - 1 : It is limited in time and size - 2 : It is unlimited in time and limited in size - 3 : It is stable and insensitive to disturbances - 4 : It is limited in time and unlimited in size
	<ul style="list-style-type: none"> <li>a 3,4</li> <li>b 1,3</li> <li>c 1</li> <li>d 2,3</li> </ul>
<b>613</b> id 3665	With regard to short-term memory, we can say that :
	<ul style="list-style-type: none"> <li>a it is a stable form of working memory, and thus not very sensitive to any disturbance</li> <li>b it is made up of everyday information for immediate use, and is limited in terms of the time for which it retains data but not in its storage capacity</li> <li><b>c it is made up of everyday information for immediate use, and is limited in its capacity for storing and retaining data</b></li> <li>d it mainly contains procedural knowledge</li> </ul>
<b>614</b> id 3679	To facilitate and reduce the time taken to access information in long-term memory, it is helpful to:
	<ul style="list-style-type: none"> <li>a structure irrelevant information as much as possible before committing it to memory</li> <li>b learn and store data in a logical and structured way</li> <li><b>c mentally rehearse information before it is needed</b></li> <li>d avoid to rehearse information which we know we will need soon</li> </ul>

<b>615</b> id 3680	Concerning the capacity of the human long-term memory
	<p>a it is structurally limited in terms of storage capacity, but unlimited in terms of storage time</p> <p><b>b its storage capacity is unlimited</b></p> <p>c it is structurally limited in terms of storage time but not in terms of capacity</p> <p>d its mode of storing information is passive, making memory searches effective</p>
<b>616</b> id 3681	Which of the following statements about long-term memory are correct? -1: Information is stored there in the form of descriptive, rule-based and schematic knowledge. -2: The period of time for which information is retained is limited by the frequency with which this same information is used. -3: It processes information quickly and has an effective mode of access in real time. -4: Pre-activation of necessary knowledge will allow for a reduction in access time.
	<p><b>a 1 and 4 are correct</b></p> <p>b 1 and 2 are correct</p> <p>c 2, 3 and 4 are correct</p> <p>d 2 and 4 are correct</p>
<b>40.3.1.4. Response selection</b>	
<b>617</b> id 724	The quality of learning :
	<p><b>a is promoted by feedback on the value of one's own performance</b></p> <p>b depends on long-term memory capacity</p> <p>c is independent of the level of motivation</p> <p>d is independent of age</p>
<b>618</b> id 728	Young pilots or pilots with little experience of airplanes differ from experienced pilots in the following way :
	<p>a experienced pilots are less routine-minded than young pilots because they know that routine causes mistakes</p> <p><b>b unexperienced pilots refer to information more than experts when carrying out the same task</b></p> <p>c task for task, an expert's workload is greater than a novice's one</p> <p>d flight planning performance decreases with age, and experience is unable to mask this deficiency</p>
<b>619</b> id 1710	Mental training, mental rehearsal of cognitive pretraining is called the inner, ideomotor simulation of actions.
	<p><b>a It is most important for the acquisition of complex perceptual motor skills</b></p> <p>b It is most important for selfcontrol</p> <p>c It is most effective, if it is practiced on an abstract level if imagination</p> <p>d It is more effective than training by doing</p>
<b>620</b> id 1712	How can the process of learning be facilitated?
	<p>a By reinforcing errors</p> <p>b By increasing the psychological pressure on the student</p> <p>c By punishing the learner for unsuccessful trials</p> <p><b>d By reinforcing successful trials</b></p>

<b>621</b> id 1713	Learning is called each lasting change of behaviour due to
	<ul style="list-style-type: none"> <li>a drug influence</li> <li>b innate mechanisms</li> <li>c maturation</li> <li><b>d practice and experience</b></li> </ul>
<b>622</b> id 1714	Mental training is helpful to improve flying skills
	<ul style="list-style-type: none"> <li><b>a at all levels of flying proficiency</b></li> <li>b only for student pilots</li> <li>c only for instructor pilots</li> <li>d only at a certain level of flying experience</li> </ul>
<b>623</b> id 2094	Motivation is a quality which is often considered vital in the pilot's work to maintain safety.
	<ul style="list-style-type: none"> <li>a A high degree of motivation makes it possible to make up for insufficient knowledge in complete safety</li> <li>b Motivation reduces the intensity of sensory illusions</li> <li><b>c However, excessive motivation leads to stress which adversely affects performance</b></li> <li>d A high degree of motivation lowers the level of vigilance</li> </ul>
<b>624</b> id 2122	In order to provide optimum human performance it is advisable to
	<ul style="list-style-type: none"> <li><b>a establish strategies for planning, automating and managing resources (in real time)</b></li> <li>b plan a maximum of objectives and non-automated actions</li> <li>c avoid powerful behaviour expedient of automating tasks</li> <li>d plan future actions and decisions at least a couple of days in advance</li> </ul>
<b>625</b> id 2123	The planning and anticipation of future actions and situations makes it possible to: - 1 : create a precise reference framework. -2 : avoid saturation of the cognitive system. -3 : automate planned actions. -4 : activate knowledge which is considered necessary for the period to come. The correct statement(s) is (are):
	<ul style="list-style-type: none"> <li><b>a 1, 2 and 4 are correct</b></li> <li>b 1 and 2 are correct</li> <li>c 2 and 4 are correct</li> <li>d 3 and 4 are correct</li> </ul>
<b>626</b> id 2125	Pre-thought action plans may be said to: -1 : ease access to information which may be necessary. -2 : sensitize and prepare for a possible situation to come. -3 : be readily interchangeable and can therefore be reformulated at any time during the flight. -4 : define a framework and a probable strategy for the encountered situation. The combination of correct statements is:
	<ul style="list-style-type: none"> <li>a 2, 3 and 4 are correct</li> <li>b 1, 2 and 3 are correct</li> <li>c 2 and 4 are correct</li> <li><b>d 1, 2 and 4 are correct</b></li> </ul>

627 id 2127	The workload may be said to: -1 : be acceptable if it requires more than 90 % of the crew resources. -2 : be acceptable if it requires about 60 % of the crew resources. -3 : depend on the pilot's expertise. -4 : correspond to the amount of resources available The combination of correct statements is:
	<p>a 1 and 3 are correct</p> <p>b 1, 3 and 4 are correct</p> <p><b>c 2, 3 and 4 are correct</b></p> <p>d 2 and 4 are correct</p>
628 id 2362	The effect of experience and habit on performance
	<p>a is never negative</p> <p>b is always negative</p> <p><b>c can both be beneficial and negative</b></p> <p>d is always beneficial</p>
629 id 2366	Murphy's law states :
	<p><b>a If equipment is designed in such a way that it can be operated wrongly, then sooner or later, it will be</b></p> <p>b Response to a particular stressful influence varies from one person to another</p> <p>c Expectation has an influence on perception</p> <p>d Performance is dependent on motivation</p>
630 id 3095	Which of the following are primary sources of motivation in day-to-day professional life ? 1. Being in control of one's own situation 2. Fear of punishment 3. Success (achievement of goals) 4. Social promotion, money
	<p>a 3,4</p> <p>b 1,2,3</p> <p><b>c 1,2,3,4</b></p> <p>d 2,4</p>
631 id 3096	Which of the following statements summarises the impact that motivation may have on attention ?
	<p>a It only facilitates attention in extreme cases (risk of death)</p> <p><b>b It increases the mobilisation of energy and thus facilitates the quality of alertness and attention</b></p> <p>c Motivation has only a small effect on attention, but it facilitates alertness</p> <p>d It stimulates attention but may lead to phases of low arousal</p>
632 id 3121	The needs of an individual lead to :
	<p>a prolonged suppression of all basic needs in favour of high self-actualization</p> <p>b preservation from dangers only if social needs are being satisfied</p> <p>c no change in his motivation and consequently to the persistence of the individuals behaviour in regard to the desired outcome</p> <p><b>d a change in the individuals motivation and consequently to an adaptation of the behaviour</b></p>

<b>633</b> id 3985	Whilst flying a coordinated turn, most of your activity is
	<ul style="list-style-type: none"> <li>a coping behaviour</li> <li><b>b skill based behaviour</b></li> <li>c knowledge based behaviour</li> <li>d rule based behaviour</li> </ul>
<b>634</b> id 3986	If you approach an airfield VFR at a prescribed altitude, exactly following the approach procedure, and you encounter no unexpected or new problems you show:
	<ul style="list-style-type: none"> <li>a rule and skill based behaviour</li> <li>b knowledge based behaviour</li> <li>c rule based behaviour</li> <li><b>d skill based behaviour</b></li> </ul>
<b>635</b> id 3987	The choice of the moment you select flaps depending on situation and conditions of the landing is:
	<ul style="list-style-type: none"> <li>a pressure based behaviour</li> <li>b knowledge based behaviour</li> <li><b>c skill based behaviour</b></li> <li>d rule based behaviour</li> </ul>
<b>636</b> id 4030	The readiness for tracing information which could indicate the development of a critical situation
	<ul style="list-style-type: none"> <li>a makes no sense because the human information processing system is limited anyway</li> <li>b is dangerous, because it distracts attention from flying the aircraft</li> <li><b>c is necessary to maintain good situational awareness</b></li> <li>d is responsible for the development of inadequate mental models</li> </ul>
<b>637</b> id 4033	1. Lively information is easier to take into consideration for creating a mental picture than boring information. 2. The sequence in which information is offered is also important for the use the pilot makes of it.
	<ul style="list-style-type: none"> <li><b>a 1 and 2 are both correct</b></li> <li>b 1 is correct, 2 is not correct</li> <li>c 1 is not correct, 2 is correct</li> <li>d 1 and 2 are both not correct</li> </ul>
<b>638</b> id 4035	The development of procedures makes pilots more effective and more reliable in their actions. This is called:
	<ul style="list-style-type: none"> <li><b>a procedural consistency</b></li> <li>b mental model</li> <li>c knowledge-based behaviour</li> <li>d procedural confusion</li> </ul>

## 40.3.2. Human error and reliability

### 40.3.2.1. Reliability of human behaviour

<b>639</b> id 1709	An excessive need for safety
	<ul style="list-style-type: none"> <li><b>a hampers severely the way of pilot decision making</b></li> <li>b is absolute necessary for a safe flight operation</li> <li>c is the most important attribute of a line pilot</li> <li>d guarantees the right decision making in critical situations</li> </ul>



<b>640</b> id 1716	What is meant by the term 'complacency'?
	<ul style="list-style-type: none"> <li>a To question possible solutions</li> <li><b>b Careless negligence or unjustified self-confidence</b></li> <li>c An agreement between captain and co-pilot due to Crew Resources Management</li> <li>d Physiological consequences on pilots because of fear of flying</li> </ul>
<b>641</b> id 1720	It is desirable to standardize as many patterns of behaviour (operating procedures) as possible in commercial aviation mainly because
	<ul style="list-style-type: none"> <li><b>a such behaviour reduces errors even under adverse circumstances</b></li> <li>b this lowers the ability requirement in pilot selection</li> <li>c this reduces the amount of training required</li> <li>d it makes the flight deck easier to design</li> </ul>
<b>642</b> id 2141	Why must flight safety considerations consider the human error mechanism? -1 : It is analysis of an incident or accident which will make it possible to identify what error has been committed and by whom. It is the process whereby the perpetrator is made responsible which may lead to elimination of the error. -2 : If we have a better understanding of the cognitive error mechanism, it will be possible to adapt procedures, aircraft interfaces, etc. -3 : It is error management procedure which enables us to continuously adjust our actions. The better we understand the underlying mechanism of an error, the better will be our means for detecting and adapting future errors. -4 : Since error is essentially human, once it has been identified by the use of procedures, a person will be able to anticipate and deal with it automatically in the future. The correct statement(s) is (are):
	<ul style="list-style-type: none"> <li>a 2 and 4</li> <li>b 3 and 4</li> <li><b>c 2 and 3</b></li> <li>d 1 and 4</li> </ul>
<b>643</b> id 2142	Improvement of human reliability should entail:
	<ul style="list-style-type: none"> <li><b>a an effort to understand the causes and find means of recovery for errors committed</b></li> <li>b in aviation, the elimination of errors on the part of front-line operators</li> <li>c the elimination of latent errors before they can effect performance</li> <li>d the analysis of modes of human failures</li> </ul>
<b>644</b> id 2143	How can man cope with low error tolerant situations?
	<ul style="list-style-type: none"> <li>a By generally avoiding situations in which tolerance to error is low</li> <li>b By increasing error detection in all circumstances</li> <li>c By randomly applying a combination of optimum detection, warning and monitoring systems</li> <li><b>d By constantly complying with cross-over verification procedures (cross monitoring)</b></li> </ul>

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**645** | What are the various means which allow for better error detection? -1 :  
id 2144 | Improvement of the man-machine interface. -2 : Development of systems for checking the consistency of situations. -3 : Compliance with cross-over redundant procedures by the crew. -4 : Adaptation of visual alarms to all systems. The correct statement(s) is (are):

- a 1, 2 and 3
- b 1 and 3
- c 2, 3 and 4
- d 3 and 4

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**646** | Studies of human error rates during the performance of simple repetitive task have  
id 2354 | shown, that errors can normally be expected to occur about

- a 1 in 50 times
- b 1 in 10 times
- c 1 in 100 times
- d 1 in 250 times

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**647** | Which of the following human error rates can be described as both realistic and  
id 2355 | pretty good, after methodical training

- a 1 in 10000 times
- b 1 in 1000 times
- c 1 in 100 times
- d 1 in 100000 times

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**648** | Situations particularly vulnerable to "reversion to an earlier behaviour pattern" are :  
id 2363 | 1. when concentration on a particular task is relaxed 2. when situations are characterised by medium workload 3. when situations are characterised by stress

- a 2. and 3.
- b 1. and 2.
- c 3.
- d 1. and 3.

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**649** | Which of the following statements is correct regarding personality?  
id 6395 |

- a Your personality develops continuously during your whole life
- b Your personality tends to change radically between 11-12 to 18-19 years of age
- c Your personality develops during the first few years of your life
- d Your personality changes as a result of your changing attitudes to life and work

#### 40.3.2.2. Hypotheses on reality

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**650** | The most dangerous characteristic of the false mental model is, that it  
id 2364 |

- a will only occur under conditions of stress
- b will mainly occur under conditions of relaxation
- c is frequently extremely resistant to correction
- d can easily be changed

<b>651</b> id 3137	What would be the priority aim in the design of man-machine interfaces and in the creation of their application procedures for combatting problems associated with human error ?
<b>a To reduce the risks of the appearance or non-detection of errors entailing serious consequences</b> <b>b</b> To eliminate the risk of latent errors occurring <b>c</b> To cater systematically for the consequences of errors in order to analyse their nature and modify ergonomic parameters <b>d</b> To put in place redundant alarm systems	

<b>652</b> id 6344	According to Maslow, which of the following human needs is most profound (the lowest level in the pyramide)?
<b>a</b> The need for self realisation <b>b Physical needs</b> <b>c</b> The need for safety and security <b>d</b> Esthetical needs	

#### 40.3.2.3. Theory and model of human error

<b>653</b> id 2120	According to Rasmussen's model, errors in rule-based control mode are of the following type(s) :
<b>a</b> handling errors <b>b</b> routine errors <b>c errors of technical knowledge</b> <b>d</b> creative errors	

<b>654</b> id 2121	According to Rasmussen's model, errors are of the following type(s) in skill-based control mode:
<b>a</b> knowledge errors <b>b routine errors</b> <b>c</b> handling errors <b>d</b> creative errors	

<b>655</b> id 2134	Which of the following statements best fits the definition of an active error? Active error is:
<b>a</b> produced either by a front-line operator or by a remote operator and results in a hidden or latent consequence at a specific moment of the action <b>b produced by the operator and can be rapidly detected via the effects and consequences which it induces on the overall action</b> <b>c</b> essentially results from the application of a bad rule or the poor application of a good rule by airplane designers <b>d</b> rare in front-line actions and difficult to detect owing to the fact that it usually occurs in a complex system of uncontrolled and involuntary deviations	

<b>656</b> id 2135	What are the main consequences of latent errors? They: -1 : remain undetected in the system for a certain lenght of time. -2 : may only manifest themselves under certainl conditions. -3 : are quickly detectable by the front-line operator whose mental schemas on the instantaneous situation filter out formal errors. -4 : lull the pilots into security. The correct statement(s) is (are):
<b>a</b> 2, 3 and 4 <b>b</b> 1 and 2 <b>c</b> 1 and 3 <b>d 1,2 and 4</b>	

<b>657</b> id 2136	Which of the following statements fits best the concept of latent error? Latent errors:
	<ul style="list-style-type: none"> <li>a are rarely made by front-line operators, and are consequently readily identified and detected by the monitoring, detection and warning links</li> <li><b>b have been present in the system for a certain length of time and are difficult to understand as a result of the time lag between the generation and the occurrence of the error</b></li> <li>c are mainly associated with the behaviour of front-line operators and are only detected after advanced problem-solving</li> <li>d rapidly may be detected via their immediate consequences on the action in progress</li> </ul>
<b>658</b> id 2137	A system is all the more reliable if it offers good detectability. The latter is the result of: -1 : tolerance of the various systems to errors. -2 : the sum of the automatic monitoring, detection and warning facilities. -3 : the reliability of the Man-Man and Man-Machine links. -4 : the alerting capability of the Man-Machine interface. The combination of correct statements is:
	<ul style="list-style-type: none"> <li>a 1, 2 and 4</li> <li><b>b 2 and 4</b></li> <li>c 1 and 3</li> <li>d 3 and 4</li> </ul>
<b>659</b> id 2139	When can a system be said to be tolerant to error? When:
	<ul style="list-style-type: none"> <li>a latent errors do not entail serious consequences for safety</li> <li>b its safety system is too permeable to error</li> <li>c its safety system has taken account of all statistically probable errors</li> <li><b>d the consequences of an error will not seriously jeopardise safety</b></li> </ul>
<b>660</b> id 2140	Once detected, an error will result in cognitive consequences which:
	<ul style="list-style-type: none"> <li>a are prompted by inductive factors</li> <li>b destabilize cognitive progress and maintain the error</li> <li><b>c make it possible to modify behaviour with a view to adaptation</b></li> <li>d have virtually no interaction with behaviour</li> </ul>
<b>661</b> id 2145	What means can be used to combat human error? -1 : Reducing error-prone mechanisms. -2 : Improving the way in which error is taken into account in training. -3 : Sanctions against the initiators of error. -4 : Improving recovery from errors and its consequences. The combination of correct statements is:
	<ul style="list-style-type: none"> <li>a 1 and 2</li> <li>b 3 and 4</li> <li><b>c 1, 2 and 4</b></li> <li>d 2, 3 and 4</li> </ul>
<b>662</b> id 2158	Human behaviour is determined by:
	<ul style="list-style-type: none"> <li><b>a biological characteristics, social environment and cultural influences</b></li> <li>b biological characteristics</li> <li>c the social environment</li> <li>d cultural influences</li> </ul>

<b>663</b> id 3098	The level of automation of behaviour-patterns facilitates the saving of resources and therefore of attention. On the other hand, it may result in :  a decision-making errors b mistakes <b>c routine errors (slips)</b> d errors in selecting an appropriate plan of action
<b>664</b> id 3140	What happens in problem-solving when the application of a rule allows for the situation to be resolved ?  a A second monitoring rule must be applied b A switch is made to knowledge mode in order to refine the results c A switch is made to knowledge- based mode in order to continue monitoring of the problem <b>d Actions return to an automatic mode</b>
<b>665</b> id 3141	In problem-solving, what determines the transition from rules-based activities to a knowledge-based activity ?  a Attentional capture <b>b The unsuitability of the known rules for the problem posed</b> c Knowledge of rules which apply to the problem posed d The unsuitability of the automated actions
<b>666</b> id 3143	Which of the following errors occur at rules-based level ? 1.Omission 2.The application of a poor rule 3. Attentional capture 4. The poor application of a good rule  a 1,3 b 1,2 c 3,4 <b>d 2,4</b>
<b>667</b> id 3145	The descriptive aspect of errors according to Hollnagel's model describes various directly observable types of erroneous actions which are : 1. Repetition and omission 2. The forward leap and the backward leap 3. Intrusion and anticipation 4. Intrusion  <b>a 1,2,4</b> b 1,3 c 2,4 d 1,2,3
<b>668</b> id 6333	Which of the following is a typical "error of commission"?  a Forgetting to read climb checklist b Deliberate violation of the 250 kts rule below FL 100 <b>c Taxiing out to a wrong runway</b> d Jerky attitude flying due to lack of sleep

#### 40.3.2.4. Error generation

<b>669</b> id 722	Human errors are frequent and may take several forms :  <b>a an error can be described as the mismatch between the pilots intention and the result of his/her actions</b>  <b>b</b> an error of intention is an error of routine  <b>c</b> an violation is an error which is always involuntary  <b>d</b> representational errors in which the pilot has properly identified the situation and is familiar with the procedure
<b>670</b> id 729	Analysis of accidents involving the human factor in aviation shows that :  <b>a there is hardly ever a single cause responsible</b>  <b>b</b> only front-line operators are involved  <b>c</b> only pilot training will make it possible to improve the situation  <b>d</b> failure of the human factor is always connected with technical breakdowns
<b>671</b> id 1717	What does the 'End Deterioration Effect'('Home-itis') mean?  <b>a The tendency to sudden, imperceptible errors shortly before the end of a flight</b>  <b>b</b> The result of a poor preflight planning  <b>c</b> The potential risk of loosing orientation after flying in clouds  <b>d</b> The breakdown of crew coordination due to interpersonal tensions between captain and co-pilot
<b>672</b> id 1718	'Environmental capture' is a term used to describe which of the following statements? 1.The tendency for a skill to be executed in an environment in which it is frequently exercised, even if it is inappropriate to do so 2.The tendency for a skill acquired in one aircraft type to be executed in a new aircraft type, even if it is inappropriate to do so 3. The tendency for people to behave in different ways in different social situations 4. The gaining of environmental skills  <b>a 1 and 2 are correct</b>  <b>b</b> 1, 2 and 3 are correct  <b>c</b> 2 and 3 are correct  <b>d</b> 4 is correct
<b>673</b> id 2138	To avoid wrong decisions by the pilot, an aircraft system should at least be able to  <b>a</b> tolerate the deviation  <b>b</b> report the deviation  <b>c</b> correct the deviation  <b>d report its malfunction</b>
<b>674</b> id 3139	What may be the origins of representation errors ? 1. Perception errors 2. The catering for all available information 3. Incorrect information from the observed world 4. The receipt of a bad piece of information  <b>a</b> 3,4  <b>b</b> 1,2  <b>c 1,3,4</b>  <b>d</b> 2,3

<b>675</b> id 3142	Under what circumstances will a pilot change from automated level to rule-based level ?
	<ul style="list-style-type: none"> <li>a Failure of all the known rules</li> <li><b>b When detecting, that an automated behaviour will no longer lead to the intended outcome</b></li> <li>c The appearance of a situation or problem which is unknown and completely new</li> <li>d An automated cognitive check procedure</li> </ul>
<b>676</b> id 3144	Errors which occur during highly automated actions may result from : 1. the capture of a poor action subprogram 2. a mistake in the decision making process 3. the application of a poor rule 4. an action mode error
	<ul style="list-style-type: none"> <li><b>a 1,4</b></li> <li>b 1,2</li> <li>c 3,4</li> <li>d 2,3,4</li> </ul>
<b>677</b> id 3146	What are the main characteristics of active errors ? They : 1. are detectable only with difficulty by first-line operators 2. have rapid and direct consequences on the action in progress 3. are down to first-line operators 4. have an impact on the overall action whose timing may be affected significantly
	<ul style="list-style-type: none"> <li>a 1,2</li> <li><b>b 2,3</b></li> <li>c 3,4</li> <li>d 1,4</li> </ul>
<b>678</b> id 3683	The relationship which exists between crew error and flight safety :
	<ul style="list-style-type: none"> <li>a is a linear relationship which introduces crew training as the main factor</li> <li><b>b is dependent on the social and technical system and also on the operational context created by the system</b></li> <li>c is independent of the operational context, with the latter being identical for any flight operation</li> <li>d has been evolving for 40 years and has now become independent of the social and technical system</li> </ul>
<b>679</b> id 3968	The effects of sleep deprivation on performance: 1. increase with altitude 2. decrease with altitude 3. increase with higher workload 4. decrease with higher workload
	<ul style="list-style-type: none"> <li>a 1, 3 and 4 are correct</li> <li>b 1,2 and 3 are correct</li> <li><b>c 1 and 3 are correct</b></li> <li>d 2, 3 and 4 are correct</li> </ul>

### 40.3.3. Decision making

#### 40.3.3.1. Decision making concepts

<b>680</b> id 721	Which of the following statements is correct regarding decision making?
	<ul style="list-style-type: none"> <li><b>a Deciding means choosing between alternatives.</b></li> <li>b Deciding means being able to come up with original solutions.</li> <li>c Deciding means imposing one's point of view.</li> <li>d Deciding means applying an automatic procedure.</li> </ul>

<b>681</b> id 2160	Most accidents are mainly caused by lack of:
	<ul style="list-style-type: none"> <li>a good maintenance of aircraft</li> <li>b physical skills</li> <li>c interpersonal relations</li> <li>d <b>good judgement</b></li> </ul>
<b>682</b> id 2162	Judgement is based upon:
	<ul style="list-style-type: none"> <li>a <b>a process involving a pilot's attitude to take and to evaluate risks by assessing the situation and making decisions based upon knowledge, skill and experience</b></li> <li>b a decision making process involving physical sensations and their transfer to manually operate the aircraft controls</li> <li>c the development of skills from constant practice of flight manoeuvres</li> <li>d the ability to interpret the flight instruments</li> </ul>
<b>683</b> id 3126	Which problem may be overlooked in the process of making a decision?
	<ul style="list-style-type: none"> <li>a <b>Owing to great haste, bypassing analysis of the current actual situation in order to apply the decision prepared beforehand</b></li> <li>b Preparing decisions often leads to strategies of minimum commitment</li> <li>c Preparing decisions promotes the appearance of inflexibilities</li> <li>d The captain's superior knowledge, justified by his/her status</li> </ul>
<b>684</b> id 3127	In terms of decision-making, the intention to become integrated into the team, to be recognised as the leader or to avoid conflicts may lead to :
	<ul style="list-style-type: none"> <li>a the improvement of internal risk assessment capabilities</li> <li>b an authoritarian approach thus demonstrating ones own ability to lead</li> <li>c <b>the attempt to agree on decisions made by other crew members</b></li> <li>d the suggestion of a sequential solution in which everyone can contribute what he/she knows</li> </ul>
<b>685</b> id 3128	What strategy should be put in place when faced with an anticipated period of time pressure ?
	<ul style="list-style-type: none"> <li>a <b>A strategy of preparing decisions</b></li> <li>b A non-sequential strategy</li> <li>c A Laissez-faire strategy</li> <li>d A strategy of no commitment</li> </ul>
<b>686</b> id 3129	Which biases relate to human decision making? 1. Personal experience tends to alter the perception of the risk of an event occurring 2. There is a natural tendency to want to confirm our decision even in the face of facts which contradict it 3. The group to which an individual belongs tends to influence the particular decision 4. There is natural tending to select only objective facts for decision-making purposes
	<ul style="list-style-type: none"> <li>a <b>1,2,3</b></li> <li>b 1,2</li> <li>c 3,4</li> <li>d 1,2,4</li> </ul>



<b>687</b> id 3130	Habits and routine can influence decision-making in a way that:
	<ul style="list-style-type: none"> <li>a professional pilots will never question established procedures</li> <li>b one always wants to see previous experience confirmed by new decisions</li> <li><b>c a tendency to select the most familiar solution first and foremost, sometimes to the detriment of achieving the best possible result</b></li> <li>d one always selects a choice in accordance with the company's usual practices</li> </ul>
<b>688</b> id 3131	Decision-making can be influenced by the following factors: 1. people tend to conform to opinions expressed by a majority within the group they belong to 2. people always tend to keep the future decisions in line with those their superiors have made in the past 3. people more easily tend to select data which meet the expectations 4. people hardly base decisions on their personal preferences but rather on rational information
	<ul style="list-style-type: none"> <li>a 2,4</li> <li>b 2,3</li> <li>c 1,4</li> <li><b>d 1,3</b></li> </ul>
<b>689</b> id 3132	The DECIDE model is based on :
	<ul style="list-style-type: none"> <li>a a statistical model based on observation of human decision-making</li> <li>b a prescriptive generic model which is subject to mathematical logic</li> <li>c a normative generic model based on mathematical logic</li> <li><b>d a prescriptive generic model, taking into account the method which seems most likely to come up with the solution</b></li> </ul>
<b>690</b> id 3133	Decision-making is a concept which represents :
	<ul style="list-style-type: none"> <li>a a spontaneous act of seeking the most effective solution in a given situation when faced with a defined problem</li> <li>b an automated or automation-like act of applying defined procedures</li> <li>c an automatic process of selection from among the various solutions to a given problem</li> <li><b>d a voluntary and conscious process of selection, from among possible solutions, for a given problem</b></li> </ul>
<b>691</b> id 3134	Which of the following characteristics form part of decision-making on the flight deck ?
	<ul style="list-style-type: none"> <li>a A decision is only valid in a defined and delimited time</li> <li><b>b A good decision depends on analysis of the situation</b></li> <li>c A good decision can always be reversed if its result does not come up to expectations</li> <li>d A group decision must always be established prior to action</li> </ul>
<b>692</b> id 3135	In decision-making, the selection of a solution depends : 1. on objective and subjective criteria 2. on the objective to be achieved 3. on the risks associated with each solution 4. above all on the personality of the decision-maker
	<ul style="list-style-type: none"> <li>a 1,2,4</li> <li><b>b 1,2,3,4</b></li> <li>c 1,3</li> <li>d 4</li> </ul>

<b>693</b> id 3136	Decision-making results in:
	<ul style="list-style-type: none"> <li>a a choice always based on the experience of the PIC</li> <li><b>b a choice between different solutions for achieving a goal</b></li> <li>c an objective choice concerning applicable solutions for a given end</li> <li>d a subjective choice concerning applicable solutions</li> </ul>
<b>694</b> id 3653	The confirmation bias of decision making is
	<ul style="list-style-type: none"> <li>a a tendency not to look for information which would reassure oneself about a decision</li> <li>b a tendency not to seek for information which confirms a judgement</li> <li><b>c a tendency to ignore that information which indicates that a decision is poor;</b></li> <li>d a tendency to look for facts that confirm expectations before implementing one's decision</li> </ul>
<b>40.3.4. Avoiding and managing errors: cockpit management</b>	
<b>40.3.4.1. Safety awareness</b>	
<b>695</b> id 1721	When a pilot is facing a problem during flight he should
	<ul style="list-style-type: none"> <li><b>a take as much time as he needs and is available to make up his mind</b></li> <li>b always make up his mind quickly to give himself as much spare time as possible</li> <li>c avoid making up his mind until the very last minute</li> <li>d make up his mind before consulting other crew members</li> </ul>
<b>696</b> id 1724	The assessment of risk in a particular situation will be based on
	<ul style="list-style-type: none"> <li>a external factors only</li> <li><b>b subjective perception and evaluation of situational factors</b></li> <li>c the emergency checklist only</li> <li>d situational factors only</li> </ul>
<b>697</b> id 2163	The relevance of check procedures during flight becomes even more important when:
	<ul style="list-style-type: none"> <li>a conducting a longer flight than you would normally perform</li> <li>b flying an aircraft which you have flown recently</li> <li><b>c flying an unfamiliar type of aircraft and experiencing mental pressure</b></li> <li>d flying an aircraft which you have flown many times before</li> </ul>
<b>698</b> id 2164	Which of the following responses is an example of "habit reversion" (negative habit transfer):
	<ul style="list-style-type: none"> <li>a Incorrect anticipation of an air traffic controller's instructions</li> <li>b Turning an aircraft to the left when intending to turn it to the right</li> <li><b>c A pilot who has flown many hours in an aircraft in which the fuel lever points forward for the ON position, may unintentionally turn the fuel lever into the false position, when flying a different aircraft, where the fuel lever has to point aft to be in the ON position</b></li> <li>d habitually missing an item on the checklist or missing the second item when two items are on the same line</li> </ul>

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**699** | Although the anticipation of possible events is a good attitude for pilots to acquire, it  
id 2165 | can sometimes lead to hazardous situations. With this statement in mind, select the response below which could lead to such a hazard:

- a anticipating that the flight will take longer time than planned
  - b anticipating that the weather may deteriorate
  - c mishearing the contents of a reply from an air traffic controller when a non-standard procedure was given but a standard procedure was anticipated**
  - d anticipating the sequence of items on a check list.
- 

**700** | The following course of action must be taken if gastrointestinal or cardiopulmonary  
id 2871 | complaints or pain arise before take-off : -1 : take the standard medicines and advise the doctor on returning from the flight -2 : assess your own ability to fly, if necessary with the help of a doctor -3 : if in doubt about fitness to fly - do not fly! -4 : reduce the cabin temperature, and drink before you are thirsty so as to avoid dehydration

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

**701** | You are transporting a passenger who has to be at a certain destination for a  
id 4036 | meeting. The weather forecast at destination tends to be much worse than expected, so you consider to divert. The businessman offers you money if you manage to land there at any case. What is your appropriate way of action? You will

- a decide to divert if you think it is necessary.**
- b continue and think about the nice things you can buy from the money
- c divert in any case to demonstrate who's the man in charge aboard
- d see what you can do and ask the copilot to tolerate any decision

#### 40.3.4.2. Co-ordination (multi crew concepts)

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**702** | The decision making in emergency situations requires firstly:  
id 1722 |

- a the whole crew to focus on the problem
  - b speed of reaction
  - c informing ATC thoroughly about the situation
  - d distribution of tasks and crew coordination**
- 

**703** | Which of the following abilities will not improve efficient decision making on the  
id 1723 | cockpit?

- a Communicational skills and social competence.
  - b Ability to persuade others to follow the own point of view.**
  - c Ability to search for and examine all available information regarding a situation.
  - d Ability to think ahead and specify alternative courses of action.
- 

**704** | Once a pilot has developed a certain way of thinking about a problem he will  
id 1725 | probably

- a find it impossible to get out of that way of thinking, whatever happens
- b find it difficult to stick to his/her interpretation of the data
- c find it easy to interpret the data in different ways
- d find it difficult to get out of that way of thinking and difficult to try a different interpretation of the data**

705 id 1726	To maintain good situational awareness you should: (1) believe only in your own interpretation of the data (2) gather as much data as possible from every possible source before making inferences (3) question whether your hypothesis still fits the situation as events progress and try to make time to review the situation (4) consider ways of testing your situational hypothesis to see whether it is correct
	<p><b>a 2, 3 and 4 are correct</b></p> <p>b all answers are correct</p> <p>c 1 and 4 are correct</p> <p>d 1 and 3 are correct</p>
706 id 1727	Doing a general briefing in the preflight phase the captain should emphasize
	<p>a to depart on schedule</p> <p>b complete delegation of all duties</p> <p><b>c particular requirements in the field of crew coordination due to specific circumstances</b></p> <p>d to avoid inadequate handling of flight controls</p>
707 id 2099	Of the following statements, which apply to coordinated cooperation? -1 : It allows for synergy in the actions between the captain and the pilot. -2 : It represents the simultaneous execution of a single action by the various members of the crew. -3 : Communication in this mode has the function of synchronizing actions and distributing responsibilities. -4 : Communication must be essentially focussed on temporal and cognitive synchronisation. The correct statement(s) is (are):
	<p>a 1 and 4</p> <p>b 1,2 and 4</p> <p>c 2 and 3</p> <p><b>d 1 and 3</b></p>
708 id 2100	What are the advantages of coordination?
	<p>a Interaction, cognition, redundancy.</p> <p>b Cooperation, cognition, redundancy.</p> <p><b>c Redundancy, synergy, clarification of responsibility.</b></p> <p>d Redundancy, exploration, risky shift.</p>
709 id 2102	Coaction is a mode of coordination which recommends:
	<p>a the application of procedural knowledge in the conduct of specific actions</p> <p>b working parallel to achieve individual objectives</p> <p>c sustained cooperation on actions and the formulation of commitments concerning flight situations</p> <p><b>d working parallel to achieve one common objective</b></p>
710 id 2116	Which of the following statements concerning check list is correct?
	<p>a The most important items must be placed in the middle of check list so that they come to be examined once attention is focused but before concentration starts to wane</p> <p>b The most important items must be placed at the end of check list, allowing them to be kept near at hand so that they are quickly available for any supplementary check</p> <p><b>c The most important items should be placed at the beginning of a check list since attention is usually focused here</b></p> <p>d All the items of a check list are equally important; their sequence is of no importance</p>

711 id 2117	Which of the following statements are correct with regard to the design of a check list? -1 : The longer a check list, the more it must be subdivided into logical parts. -2 : The trickiest points must be placed in the middle of the check list. -3 : Check lists must be designed in such a way that they can be lumped together with other tasks. -4 : Whenever possible, a panel scan sequence should be applied -5 : Critical points should have redundancies. The combination of correct statements is:
	<ul style="list-style-type: none"> <li>a 1, 2 and 5 are correct</li> <li>b 1, 2 and 3 are correct</li> <li><b>c 1, 4 and 5 are correct</b></li> <li>d 1, 3 and 5 are correct</li> </ul>
712 id 2118	The use of check lists must be carried out in such a way that:
	<ul style="list-style-type: none"> <li>a it may be rejected since redundancy in the following check list will serve as verification</li> <li>b their execution may be done simultaneously with other actions</li> <li>c their execution is not lumped together with important tasks</li> <li><b>d their execution must not be done simultaneously with other actions</b></li> </ul>
713 id 2124	The purpose of action plans which are implemented during briefings is to:
	<ul style="list-style-type: none"> <li><b>a initiate procedures and reactions for situations that are most likely, risky or difficult during the flight</b></li> <li>b define general planning of the flight plan</li> <li>c allow everyone to prepare their own reactions in a difficult situation</li> <li>d activate a collective mental schema with respect to non-procedural actions to be carried out</li> </ul>
714 id 2126	In order to overcome an overload of work during the flight, it is necessary to: -1 : know how to use one's own reserve of resources in order to ease the burden on the crew. -2 : divide up tasks among the crew. -3 : abandon automatic mode and instead process as much information as possible consciously. -4 : drop certain tasks and stick to high-level priorities. The correct statement(s) is (are):
	<ul style="list-style-type: none"> <li>a 1, 2 and 3 are correct</li> <li>b 1 and 3 are correct</li> <li><b>c 1, 2 and 4 are correct</b></li> <li>d 3 and 4 are correct</li> </ul>
715 id 2168	The person with overall responsibility for the flight is the -1 Pilot in Command -2 Co-pilot -3 Navigator -4 Air traffic controller The correct statement(s) is (are):
	<ul style="list-style-type: none"> <li><b>a 1</b></li> <li>b 1 and 2</li> <li>c 2 and 3</li> <li>d 4</li> </ul>
716 id 2348	The trend in airplane hull-loss rate over the last three decades seems to be related to :
	<ul style="list-style-type: none"> <li>a the year of manufacture</li> <li>b the manufacturer</li> <li>c the number of engines</li> <li><b>d the crew</b></li> </ul>

<b>717</b> id 3622	<p>Action plans (SOP's) in a cockpit must :</p> <ul style="list-style-type: none"> <li><b>a be shared by the members of the crew and updated at each modification in order to maintain maximum synergy</b></li> <li>b be tailored to the individual pilot's needs in order to facilitate the normal operation of the aircraft</li> <li>c only be tailored to the type of aircraft, regardless of current MCC procedures</li> <li>d only follow the manufacturers proposals and not reflect individual operators cockpit philosophies</li> </ul>
<b>718</b> id 6327	<p>What is meant by the term CRM today?</p> <ul style="list-style-type: none"> <li>a Cockpit resource management</li> <li><b>b Crew resource management</b></li> <li>c Company resource management</li> <li>d Crew reliability measurement</li> </ul>
<b>719</b> id 6329	<p>Synergy is a commonly used term. What does it mean?</p> <ul style="list-style-type: none"> <li>a It is another word for CRM</li> <li>b It is another word for group work</li> <li>c Synergy is the same as groupthink</li> <li><b>d The output from the group is better than the sum of the output from each individual in the group</b></li> </ul>
<b>720</b> id 6345	<p>What is meant by "groupthink"?</p> <ul style="list-style-type: none"> <li>a It is the same as synergy</li> <li>b A democratic decision within the group</li> <li><b>c More or less unconscious support of a solution from group member(s)</b></li> <li>d Consensus, all members of the group agree with a decision, i.e. this decision is not made by majority against a minority</li> </ul>
<b>721</b> id 6347	<p>What is meant by "risky shift"?</p> <ul style="list-style-type: none"> <li>a a flight or task undertaken at a time when the circadian rhythms are at their point of lowest efficiency</li> <li><b>b the tendency for a group to accept a higher degree of risk than any individual in the group</b></li> <li>c the process by which the working memory will off-load information to the long term memory during a high stress situation</li> <li>d the process by which the central decision maker will ignore any information which does not fit the mental model created to explain phenomena</li> </ul>
<b>722</b> id 6348	<p>Which of the following statements is correct regarding roles and norms within a group?</p> <ul style="list-style-type: none"> <li>a A person cannot have different roles in different groups.</li> <li><b>b An airline captain must conform to a role as a leader in the aircraft, but can act as a follower in the yacht club.</b></li> <li>c A role is the same as a norm</li> <li>d Norms are always written as procedures or regulations</li> </ul>

<b>723</b> id 6350	Being a copilot implies:
	<ul style="list-style-type: none"> <li>a Assertiveness</li> <li>b Inquiry</li> <li>c Advocacy</li> <li><b>d All of the above mentioned alternatives</b></li> </ul>
<b>724</b> id 6370	One of the following is not a "secondary group", which one?
	<ul style="list-style-type: none"> <li>a Military squadron.</li> <li>b Municipal administration.</li> <li><b>c A group of close friends having party.</b></li> <li>d A work-group of students coming together every Monday to discuss relevant topics in mathematics.</li> </ul>
<b>725</b> id 6372	What characterises a good leader?
	<ul style="list-style-type: none"> <li>a Only his/her ability to dominate and be assertive.</li> <li><b>b The situation, the goals and composition of the group.</b></li> <li>c His/her ability to prevent discussions among the crew members in order to avoid conflict.</li> <li>d The authority gradient only.</li> </ul>
<b>726</b> id 6373	Blake and Mouton illustrate leadership styles by using certain parameter(s), which (ones) of the following?
	<ul style="list-style-type: none"> <li>a Task orientation</li> <li>b Technical orientation</li> <li>c Relationship orientation</li> <li><b>d Both a) and c) are correct</b></li> </ul>
<b>727</b> id 6374	Which one of the following is a typical "primary group"?
	<ul style="list-style-type: none"> <li>a A cockpit crew in commercial aviation</li> <li>b A cockpit crew and a cabin crew in commercial aviation, having dinner at the hotel during night stop</li> <li>c A work-group of students coming together every Monday to discuss relevant topics in mathematics.</li> <li><b>d A family, gathered to celebrate mother's 40'th birthday</b></li> </ul>
<b>728</b> id 6378	What is meant by "feedback" in communication?
	<ul style="list-style-type: none"> <li><b>a The effect of a message is measured and corrected against the original meaning</b></li> <li>b Storing of messages in short time memory is available for later playback</li> <li>c Readback of a message is rarely necessary</li> <li>d The flight crew do not need to talk all the time because the feedback is automatic</li> </ul>
<b>729</b> id 6392	Cockpit automation is traditionally intended to:
	<ul style="list-style-type: none"> <li>a Relieve the pilots from certain tasks that are especially cognitively demanding</li> <li><b>b Relieve the pilots from certain routine tasks</b></li> <li>c Relieve the commander from some of his responsibility</li> <li>d Reduce pilot workload during all parts of the flight</li> </ul>

### 40.3.4.3. Co-operation

<b>730</b> id 505	The "ideal professional pilot" is, in his behaviour, <b>a</b> rather "person" than "goal" oriented <b>b "person" and "goal" oriented</b> <b>c</b> neither "person" nor "goal" oriented <b>d</b> rather "goal" than "person" oriented
<b>731</b> id 1728	During the preparational work in the cockpit the captain notices that his copilot on the one hand is rather unexperienced and insecure but on the other hand highly motivated. Which kind of leadership behaviour most likely is inappropriate? <b>a</b> The captain lets the copilot fly and gives him detailed instructions what to do <b>b</b> The captain flies the first leg by himself and explains each action to the copilot in order to keep him informed about his decisions <b>c The captain lets the copilot fly and observes his behaviour without any comments</b> <b>d</b> The captain lets the copilot fly and encourages him frankly to ask for any support that needed
<b>732</b> id 1729	Which one of the following statements characterizes a democratic and cooperative leadership style? If conflicts evolve, the leader <b>a</b> decides what to do and pushes his own opinion through <b>b</b> mainly tries to reconcile all persons involved in the conflict and tries to reestablish a nice and friendly atmosphere within the team <b>c</b> keeps a neutral position and does not participate in arguing <b>d tries to clarify the reasons and causes of the conflict with all persons involved</b>
<b>733</b> id 1730	Which of the following sentences concerning crew-performance is correct? <b>a</b> Mistakes can always be detected and corrected faster by the individual <b>b</b> To be a member of a team can not increase one's own motivation to succeed in coping with task demands <b>c The quality of crew-performance depends on the social-competence of individual team members</b> <b>d</b> The quality of crew-performance is not dependent on social-competence of individual team members
<b>734</b> id 1731	Informal roles within a crew <b>a</b> do not impair the captain's influence <b>b</b> are explicitly set out by the crew <b>c evolve as a result of the interactions that take place among crew members</b> <b>d</b> characterize inefficient crews
<b>735</b> id 1732	Which statement is correct? Crew decision making is generally most efficient, if all crew members concerned <b>a</b> always ask the captain what to do <b>b</b> are always task oriented <b>c</b> are always relationship oriented <b>d adapt their management style to meet the situational demands</b>



<b>736</b> id 1733	Which behaviour does most likely promote a constructive solution of interpersonal conflicts?
	<ul style="list-style-type: none"> <li><b>a Active listening.</b></li> <li>b Responding with counter-arguments.</li> <li>c Staying to the own point of view.</li> <li>d Giving up the own point of view.</li> </ul>
<b>737</b> id 1734	The team spirit of a cockpit-crew most likely depends on
	<ul style="list-style-type: none"> <li><b>a both pilots respecting each other and striving for the same goals</b></li> <li>b both pilots wearing the same uniform</li> <li>c both pilots flying together very often for a long period</li> <li>d both pilots having the same political and ideological attitude</li> </ul>
<b>738</b> id 1735	During the cruising phase of a short-haul flight the captain starts to smoke a cigarette in the cockpit. The flying copilot asks him to stop smoking because he is a non-smoker. The captain tells him: 'This is your problem', and continues smoking. What should the copilot do?
	<ul style="list-style-type: none"> <li>a He should repeat his worries about smoking in the cockpit and should argue with the captain about this problem until the conflict is solved</li> <li>b He should learn to accept the captain smoking cigarettes in the cockpit</li> <li><b>c He should not further discuss this issue but should come back to this conflict during the debriefing</b></li> <li>d He should report the chief pilot about this behaviour of the captain</li> </ul>
<b>739</b> id 1736	How would you call the leadership style of a captain who primarily is interested in a friendly atmosphere within his crew, who is always constructive and encouraging, who usually compromises in interpersonal conflicts, who trusts in the capabilities of his crew-members, and who leaves the crew freedom for own decisions, even if this makes the process more difficult?
	<ul style="list-style-type: none"> <li>a High task-orientation and low relationship-orientation</li> <li><b>b Low task-orientation and high relationship-orientation</b></li> <li>c High task-orientation and high relationship-orientation</li> <li>d Low task-orientation and low relationship-orientation</li> </ul>
<b>740</b> id 1737	If the copilot continuously feels unfairly treated by the captain in an unjustified way, then he should
	<ul style="list-style-type: none"> <li>a internally retire and think positive</li> <li>b freeze the communication and thus avoid immediate confrontation</li> <li>c speak up and point at consequences if unfair behaviour persists</li> <li><b>d duly point out the problem, reconcentrate on his duties and clear the matter in a more appropriate occasion</b></li> </ul>
<b>741</b> id 1742	Mark the two most important attributes for a positive leadership style: (1) dominant behaviour (2) exemplary role-behaviour (3) mastery of communication skills (4) "Laissez-faire" behaviour
	<ul style="list-style-type: none"> <li>a 2 and 4</li> <li>b 1 and 4</li> <li>c 1 and 3</li> <li><b>d 2 and 3</b></li> </ul>

742 id 2111	<p>What are typical consequences of conflicts between crew members? -1 The quality of work performance decreases as a result of the impoverishment of communications -2 A decrease in the quality of communications -3 In the case of a crew made up of experts, conflicts only result in a deterioration in relations between the individuals -4 A decrease in the usage of available resources on the flight deck The correct statement(s) is (are):</p> <p><b>a 1, 2 and 4 are correct</b></p> <p>b 2, 3 and 4 are correct</p> <p>c 1,3 and 4 are correct</p> <p>d 1,2 and 3 are correct</p>
743 id 2161	<p>Pilots are more easily inclined to take greater risks when:</p> <p><b>a they are part of a group of pilots and they feel that they are being observed and admired (e.g. air shows)</b></p> <p>b making decisions independently of others</p> <p>c they are not constrained by time</p> <p>d making a flight over unfamiliar territory</p>
744 id 3110	<p>What elements establish synergy within the crew ?</p> <p><b>a Synergy must be built up from the start of the mission (briefing) and be maintained until it comes to an end (debriefing)</b></p> <p>b Synergy establishes itself automatically within the crew, right through from briefing to debriefing</p> <p>c Synergy is independent of the natural individual characteristics of the group members (communication, mutual confidence, sharing of tasks, etc.)</p> <p>d It is only the captain's status which allows the establishment of synergy within the crew</p>
745 id 3111	<p>Which of the following statements best characterise a synergetic cockpit? 1. Decisions are taken by the captain, but prepared by the crew 2. There is little delegating of tasks 3. Communications are few in number but precise and geared purely to the flight 4. Fluid, consensual boundaries exist in regard to leadership-style, which fluctuate between authority and laissez-faire</p> <p><b>a 2,3</b></p> <p>b 1,3,4</p> <p>c 1,4</p> <p>d 2,4</p>
746 id 3112	<p>Which of the following statements best characterise a self-centered cockpit ?</p> <p><b>a The egocentric personality of the captain often leads to a synergetic cockpit</b></p> <p><b>b Without taking note of what the other members are doing, each one does his own thing while at the same time assuming that everyone is aware of what is being done or what is going on</b></p> <p>c The communication between crew members always increases when the captain takes charge of a situation</p> <p>d While decreasing communication, the independence of each member bolsters the crew's synergy</p>

<b>747</b> id 3113	What may become the main risk of a "laissez-faire" cockpit ?
	<ul style="list-style-type: none"> <li><b>a Inversion of authority</b></li> <li>b Lack of communication</li> <li>c Appearance of aggressiveness</li> <li>d Disengagement of the co-pilot</li> </ul>
<b>748</b> id 3114	What is characterized by a "laissez-faire" cockpit ?
	<ul style="list-style-type: none"> <li>a The captain's authority rules all the actions or decisions associated with the situation</li> <li>b Each member carries out actions and makes choices without explicitly informing the other members about them</li> <li><b>c A passive approach by the captain allows decisions, choices and actions by other crew members</b></li> <li>d The high level of independence granted to each member by the captain quickly leads to tension between the various crew members</li> </ul>
<b>749</b> id 3115	What are the most frequent and the least appropriate reactions on the part of a co-pilot when faced with a highly authoritarian captain ? 1. Self-assertion 2. A scapegoat feeling 3. Delayed reactions to observed discrepancies 4. Disengagement
	<ul style="list-style-type: none"> <li>a 1,3,4</li> <li>b 1,2</li> <li>c 3,4</li> <li><b>d 2,3,4</b></li> </ul>
<b>750</b> id 3116	What are the most frequent results of an self-centred captain on the flight deck ?
	<ul style="list-style-type: none"> <li>a High group performance despite the strained relations</li> <li><b>b In a two-pilot flight deck, the co-pilot is ignored and may react by disengaging, showing delayed responses or demonstrate the scapegoat effect</b></li> <li>c A major risk of authority inversion if the co-pilot is inassertive</li> <li>d Performance is very poor as self-centred behaviour leads to an increase of cooperation and efficiency</li> </ul>
<b>751</b> id 3117	An autocratic cockpit is described by :
	<ul style="list-style-type: none"> <li>a Despite the overly strong authority of the captain, everything functions correctly owing to his natural leadership</li> <li><b>b The captain's excessive authority considerably reduces communications and consequently the synergy and cohesion of the crew</b></li> <li>c Each of the members chooses what job to do without telling the others and in the belief that everyone is aware of what he is doing</li> <li>d The atmosphere is relaxed thanks to a captain who leaves complete freedom to the various members of the crew</li> </ul>
<b>752</b> id 3118	What optimises crew co-operation ? 1. Sharing and common task 2. Confidence in each others capability 3. Precise definition of functions associated with each crew members role
	<ul style="list-style-type: none"> <li>a 1,2</li> <li>b 1</li> <li><b>c 1,2,3</b></li> <li>d 2,3</li> </ul>

<b>753</b> id 3119	What distinguishes status from role ?
	<ul style="list-style-type: none"> <li><b>a While role defines- via behaviour- the functions that must be performed by individuals, status defines the enjoyment of a hierarchical position and its recognition by the group</b></li> <li>b While role defines the enjoyment of a hierarchical position and its recognition by the group, status defines - via behaviour- the functions that must be performed by individuals</li> <li>c Unlike status, role is fixed and is not modified either by the situation in flight or by the interactions of a new crew</li> <li>d Unlike status, role is fixed and is modified either by the situation in flight or by the interactions of a new crew</li> </ul>
<b>754</b> id 3120	What characterises the notion of role ?
	<ul style="list-style-type: none"> <li>a The characteristic behaviour associated with the description of the various roles of a particular status</li> <li>b Only the functions associated with role</li> <li><b>c The function and behaviour associated with the particular role</b></li> <li>d The hierarchical position of the function and the associated behaviour</li> </ul>
<b>755</b> id 3124	What is synergy in a crew ?
	<ul style="list-style-type: none"> <li>a The uncoordinated action of the crewmembers towards a common objective</li> <li>b A behavioural expedient associated with the desynchronisation of the coordinated actions</li> <li>c The coordinated action of unrelated individual performances in achieving a non-standard task</li> <li><b>d The coordinated action of all members towards a common objective, in which collective performance is proving to be more than the sum of the individual performances</b></li> </ul>
<b>756</b> id 3648	Safety is often improved by applying the principles of CRM, e.g.:
	<ul style="list-style-type: none"> <li><b>a expression of one's doubts or different opinion for as long as this doubt can not be rejected on the base of evidence</b></li> <li>b unquestioned obedience to all the Captain's decisions</li> <li>c abstention from any suggestion which might be untimely</li> <li>d the avoidance of any conflict in order to preserve the crew's synergy</li> </ul>
<b>757</b> id 3649	An efficient flight deck (synergetic cockpit) will be observed when:
	<ul style="list-style-type: none"> <li>a the Captain delegates the decision making process to other crew members</li> <li>b the plan of action is defined by the Captain because of his experience level</li> <li><b>c decisions are taken by the Captain with the help and participation of the other crew members</b></li> <li>d decisions do not need to be discussed because of a common synergy between the crew members</li> </ul>
<b>758</b> id 3650	An non-synergetic cockpit :
	<ul style="list-style-type: none"> <li>a is not very dangerous as each person checks everything personally</li> <li>b is characterised by a highly efficient crew, communicating appropriately with the outside</li> <li>c always results from an over-relaxed atmosphere</li> <li><b>d is characterised by withdrawn crewmembers and unclear communication</b></li> </ul>

<b>759</b> id 3652	CRM (Crew Resource Management) training is:
	<ul style="list-style-type: none"> <li><b>a intended to develop effectiveness of crew performance by improving attitudes towards flight safety and human relationship management</b></li> <li>b not intended to change the individual's attitude at all</li> <li>c intended solely to alter an individual's personality;</li> <li>d is mainly of relevance to pilots with personality disorders or inappropriate attitudes</li> </ul>
<b>760</b> id 6375	Which one of these represents the steepest trans-cockpit authority gradient?
	<ul style="list-style-type: none"> <li><b>a The captain makes a decision, orders the copilot, but does not give any explanation to his decision</b></li> <li>b The captain discusses the situation with his copilot, makes a decision based upon this discussion. The copilot is asked to evaluate the decision</li> <li>c The captain discusses the situation with his copilot, but does never reach a conclusion because of his general indecisiveness. The copilot makes the decision.</li> <li>d The captain makes a decision, orders the copilot, and gives an explanation to his decision</li> </ul>
<b>761</b> id 6383	An airline captain is extremely focused on getting things done, but shows very little interest in making the crew work as a team. Where is this captain likely to be on the Blake and Mouton diagram?
	<ul style="list-style-type: none"> <li>a Low on task orientation, low on relationship orientation, a "True airman" type</li> <li>b Low on task orientation, high on relationship orientation, a "Retiree" type</li> <li>c High on task orientation, low on relationship orientation, a "Sociaholic" type</li> <li><b>d High on task orientation, low on relationship orientation, a "Rambo" type</b></li> </ul>
<b>40.3.4.4. Communication</b>	
<b>762</b> id 731	Which of the following statements concerning communication is valid?
	<ul style="list-style-type: none"> <li>a The syntax of communication is of little importance to its success. Only the words uttered are important.</li> <li>b Professional communication means to exchange information as little as possible.</li> <li><b>c Professional communication means: using a restricted and specific language, tailored to minimize misunderstandings.</b></li> <li>d Communication must take priority over any other flight activity under all circumstances</li> </ul>
<b>763</b> id 1690	Which combination of elements guarantee the understanding of a message without adding new information to it?
	<ul style="list-style-type: none"> <li>a Encoding.</li> <li>b Coding.</li> <li>c Synchronization.</li> <li><b>d Feedback.</b></li> </ul>
<b>764</b> id 1691	The process of responding to a sender by confirming the reception of a message is called
	<ul style="list-style-type: none"> <li>a redundancy</li> <li><b>b feedback</b></li> <li>c synchronization</li> <li>d transference</li> </ul>

<b>765</b> id 1738	What does not apply to a constructive and helpful feedback?
	<ul style="list-style-type: none"> <li>a It should be individually tailored to the receiver's background</li> <li><b>b Feedback should always state bluntly the personal failings of the receiver</b></li> <li>c It should be formulated subjectively and personally ('I' instead of 'one')</li> <li>d It should be actual and specify in regard to the concerned situation</li> </ul>
<b>766</b> id 1739	Which statement is correct?
	<ul style="list-style-type: none"> <li><b>a Problems in the personal relation between crew members very likely hamper their communication process.</b></li> <li>b There is no relation between inadequate communication and incidents or accidents.</li> <li>c Inconsistent communication behaviour improves flight safety.</li> <li>d Problems in the personal relation between crew members hardly hamper their communication process.</li> </ul>
<b>767</b> id 1740	What is the sender's frequent reason to communicate implicitly ('between the lines')?
	<ul style="list-style-type: none"> <li>a He/she has not to adjust to the communication style of the communication partner.</li> <li>b There is no need to make up one's mind before starting to communicate.</li> <li>c The receiver grasps quickly what the sender means.</li> <li><b>d Afterwards he/she always can claim to have been misunderstood.</b></li> </ul>
<b>768</b> id 1741	Metacommunication is defined as
	<ul style="list-style-type: none"> <li>a having an assessment conversation</li> <li>b balancing the own ideas and interests with those of the interlocutor</li> <li><b>c communicating about the communication</b></li> <li>d active listening</li> </ul>
<b>769</b> id 1743	An individually given feedback improves communication. Which of the following rules should a feedback comply with?
	<ul style="list-style-type: none"> <li>a The receiver of the feedback should immediately justify his behaviour.</li> <li>b The feedback should only be given if requested by the captain.</li> <li><b>c The feedback should always relate to a specific situation.</b></li> <li>d The feedback should not be referred to a concrete situation.</li> </ul>
<b>770</b> id 1744	Nonverbal communication
	<ul style="list-style-type: none"> <li>a should be avoided by all means in the cockpit</li> <li>b is of no meaning in the cockpit</li> <li>c is always used intentionally</li> <li><b>d supports verbal communication</b></li> </ul>
<b>771</b> id 1745	How do you understand the statement 'one cannot not communicate'?
	<ul style="list-style-type: none"> <li>a The statement above is a missprint.</li> <li>b Each situation requires communication.</li> <li>c You cannot influence your own communication.</li> <li><b>d Being silent as well as inactive are nonverbal behaviour patterns which express a meaning.</b></li> </ul>

<b>772</b> id 1746	Which elements of communication are prone to malfunctioning?
	<ul style="list-style-type: none"> <li>a The receiver</li> <li>b Coding and decoding</li> <li>c The sender</li> <li><b>d The sender and the receiver as well as coding and decoding</b></li> </ul>
<b>773</b> id 1747	Discussing private matters in the cockpit
	<ul style="list-style-type: none"> <li>a decreases the captains role of leadership</li> <li>b should be avoided by all means in the cockpit</li> <li>c is appropriate in any phase of flight</li> <li><b>d can improve team spirit</b></li> </ul>
<b>774</b> id 2101	Of the following statements, select those which apply to "information". -1 : It is said to be random when it is not intended for receivers. -2 : It is intended to reduce uncertainty for the receiver. -3 : It is measured in bits. -4 : Each bit of information reduces uncertainty by a quarter. The correct statement(s) is (are):
	<ul style="list-style-type: none"> <li>a 1,2,3 and 4 are correct</li> <li><b>b 2 and 3 are correct</b></li> <li>c 2,3 and 4 are correct</li> <li>d only 1 is correct</li> </ul>
<b>775</b> id 2103	Success in achieving the objectives of a message requires:
	<ul style="list-style-type: none"> <li>a different codes between form and meaning</li> <li>b differences in contexts for the sender and the receiver</li> <li>c a form of the message, which should not match the expectation of the receiver</li> <li><b>d the matching of verbal, non-verbal and contextual meanings</b></li> </ul>
<b>776</b> id 2104	In order to make communication effective, it is necessary to: -1 : avoid the synchronization of verbal and non-verbal channels. -2 : send information in line with the receiver's decoding abilities. -3 : always concentrate on the informational aspects of the message only. -4 : avoid increasing the number of communication channels, in order to simplify communication. The correct statement(s) is (are):
	<ul style="list-style-type: none"> <li>a 3 and 4 are correct</li> <li>b 1,2 and 3 are correct</li> <li><b>c only 2 is correct</b></li> <li>d 2 and 4 are correct</li> </ul>
<b>777</b> id 2105	Which of the following statements regarding interpersonal interactions are correct? -1 If the sender finds the receiver competent, he/she tends to reduce verbal redundancy content of his sentences -2 If the interlocuter is of non-native tongue, the sender will reinforce what he is saying by using more complicated words so as to optimize understanding -3 If he/she finds him incompetent, he tends to simplify the content of sentences -4 Simplification of check list in a crew who know each other essentially takes place in the case of interpersonal conflict The correct statement(s) is (are):
	<ul style="list-style-type: none"> <li>a 3 and 4 are correct</li> <li>b 1 and 2 are correct</li> <li>c 2 and 3 are correct</li> <li><b>d 1 and 3 are correct</b></li> </ul>

778 id 2106	<p>Professional languages have certain characteristics, for example: -1 : They use a limited vocabulary . -2 : They are rich and adapted to the context, which sometimes lead to ambiguities. -3 : Their grammar is rather complicated and complex. -4 : Context provides meaning, therefor reduces the risk of ambiguities. The correct statement(s) is (are):</p> <p>a 2 and 3 are correct</p> <p>b 1 and 3 are correct</p> <p>c <b>1 and 4 are correct</b></p> <p>d only 4 is correct</p>
779 id 2107	<p>A study by NASA has examined the relationships between incidents linked with ground-to-crew communication. Which of the following factors is the main reason for disturbances in the correct reception of a message?</p> <p>a Errors in understanding clearance values.</p> <p>b <b>Listening errors.</b></p> <p>c Radio failure.</p> <p>d Mother tongue differing from working language.</p>
780 id 2108	<p>An increase in workload usually leads to:</p> <p>a a longer and more frequent exchange of information</p> <p>b a longer and less frequent exchange of information</p> <p>c a shorter and more frequent exchange of information</p> <p>d <b>a shorter and less frequent exchange of information</b></p>
781 id 2109	<p>With regard to communication in a cockpit, we can say that:</p> <p>a communication is always sufficiently automated to enable an activity with a high workload element to be carried out at the same time</p> <p>b <b>communication uses up resources, thus limiting the resources allocated to work in progress</b></p> <p>c communication is only effective if messages are kept short and sufficiently precise to limit their number</p> <p>d all the characteristics of communication, namely output, duration, precision, clarity, etc. are stable and are not much affected by changes in workload</p>
782 id 2110	<p>The intended recipient of a message must: -1 : give priority and adapt to the sender's situation. -2 : acknowledge the receipt only in case of doubt. -3 : be able to reject or postpone a communication attempt if the pilot is too busy. -4 : stabilize or finish a challenging manoeuvre before starting a discussion. The combination of correct statements is:</p> <p>a 2 and 3 are correct</p> <p>b <b>1,2 and 4 are correct</b></p> <p>c 1 and 2 are correct</p> <p>d <b>3 and 4 are correct</b></p>



783 id 2112	<p>Different non-technical related opinions between pilots from different cultural backgrounds might be seen in connection with: -1 : the variations of technical training and skills. -2 : communication problems. -3 : conflicting ways of management. -4 : interpersonal problems. The combination of correct statements is:</p> <p><b>a 2,3 and 4 are correct</b></p> <p>b 1, 2 and 4 are correct</p> <p>c only 1 is correct</p> <p>d 2 and 3 are correct</p>
784 id 2113	<p>The use of modern technology applied to glass-cockpit aircraft has:</p> <p>a improved man-machine communication as a result of flight sensations</p> <p>b considerably improved all the communication facilities of the crew</p> <p>c reduced the scope for non-verbal communication in interpersonal relations</p> <p><b>d facilitated feedback from the machine via more concise data for communication on the flight deck</b></p>
785 id 2114	<p>In a glass-cockpit aircraft, communication between the members of the crew:</p> <p>a are facilitated from the non-verbal point of view owing to the increased availability which results from technical lightening of the workload</p> <p>b will increase as a result of the increase of technical dissemination of information</p> <p>c will be hampered by the decrease in actions brought about by technical improvements</p> <p><b>d does not lose its importance</b></p>
786 id 2115	<p>What are the communication qualities of a good briefing? A good briefing must: -1 : contain as much information and be as comprehensive as possible. -2 : be of a standard type so that it can be reused for another flight of the same type. -3 : be short and precise. -4 : be understandable to the other crew member(s). The correct statement(s) is (are):</p> <p>a 1, 2 and 4 are correct</p> <p>b 1 and 2 are correct</p> <p><b>c 2,3 and 4 are correct</b></p> <p>d 1 and 4 are correct</p>
787 id 2133	<p>With regard to the practice of English, which of the following statements is correct?</p> <p>a Be familiar with normal procedures in English since only this allows for effective management of any flight's communication.</p> <p><b>b All pilots should master it because the aeronautical world needs one common language.</b></p> <p>c It is necessary and sufficient to have a command of any of the official languages of the ICAO.</p> <p>d The composition of every crew should be geared to a command of the official aeronautical language of the destination country.</p>
788 id 3109	<p>Which of the following solutions represent antidotes to conflicts ? 1. Seeking arbitration 2. Actively listening to other people 3. Abandoning facts so as to move the conversation to a more emotional level 4. Becoming aware of cultural influences</p> <p><b>a 1,2,4</b></p> <p>b 1,2,3</p> <p>c 2,3,4</p> <p>d 2,4</p>

<b>789</b> id 3125	Which of the following statements concerning conflicts is correct ?
	<ul style="list-style-type: none"> <li>a Whatever the cause of the conflict, its resolution must necessarily involve an additional party if it is to be effective</li> <li><b>b Conflict management involves the participation of all involved parties in finding an acceptable collective solution</b></li> <li>c Conflicts are negative in themselves and can only lead to a general detachment of involved parties</li> <li>d The emergence of a conflict always results from calling into question the general abilities of one of the involved parties</li> </ul>
<b>790</b> id 6381	Which of the following is true for "non verbal communication"?
	<ul style="list-style-type: none"> <li>a It is the same for all cultures of the world.</li> <li>b It is not easy to misunderstand, since non verbal communication abilities are inherited, not learned habits.</li> <li>c It is for instance an article in a newspaper.</li> <li><b>d It often dominates verbal communication.</b></li> </ul>
<b>791</b> id 6389	An airline captain in Safe Airlines Inc scores very high both on task orientation and on relationship orientation (ref. Blake and Mouton model). Which of the following will probably best describe his communication in cockpit?
	<ul style="list-style-type: none"> <li>a The captain makes a decision, orders the copilot, but does not give any explanation to his decision</li> <li><b>b The captain discusses the situation with his copilot, makes a decision based upon this discussion. The copilot is asked to evaluate the decision</b></li> <li>c The captain discusses the situation with his copilot, but does never reach a conclusion because of his general indecisiveness. The copilot makes the decision.</li> <li>d The captain spends most of the time chatting socially with his copilot, but does not make much effort to depart on schedule</li> </ul>

## 40.3.5. Personality and attitudes

### 40.3.5.1. Personality and attitudes

<b>792</b> id 1689	Attitudes are defined as:
	<ul style="list-style-type: none"> <li>a the conditions necessary for carrying out an activity</li> <li><b>b tendencies to respond to people, institutions or events either positively or negatively</b></li> <li>c the genetic predispositions for thinking and acting</li> <li>d a synonym for behaviour</li> </ul>
<b>793</b> id 1707	Which of the following behaviours is most disruptive to teamwork under high workload conditions in the cockpit?
	<ul style="list-style-type: none"> <li>a Sensitive.</li> <li><b>b Mentally absent.</b></li> <li>c Disciplined.</li> <li>d Jovial.</li> </ul>
<b>794</b> id 2098	With regard to the average influence of age on pilot performance, it may be said that age:
	<ul style="list-style-type: none"> <li><b>a has little impact when the pilot is able to compensate for it by his/her flight experience</b></li> <li>b sharply reduces performance without, however, affecting cognitive capabilities</li> <li>c has a major impact owing to the impairment of memory</li> <li>d increases in impact as speed of thought and memory deteriorate</li> </ul>

<b>795</b>	Contrary to a person's personality, attitudes:
id 3122	
a	are non-evolutive adaptation procedures regardless of the result of the actions associated with them
b	form part of personality and that, as a result, they cannot be changed in an adult
c	<b>Are the product of personal disposition and past experience with reference to an object or a situation</b>
d	are essentially driving forces behind changes in personality

<b>796</b>	Which of the following elements make up the personality of an individual ? 1.
id 3123	Heredity 2. Childhood environment 3. Upbringing 4. Past experience
a	1,2,4
b	<b>1,2,3,4</b>
c	2,3
d	2,3,4

<b>797</b>	The effectiveness of the individual depends on:
id 3651	
a	the total independence with respect to the environment
b	the ability to repress the dictates of needs
c	the ability to go beyond one's own capabilities
d	<b>the ability to balance the dictates of the individual's needs and the demands of reality</b>

#### 40.3.5.2. Individual differences in personality

<b>798</b>	Very high ambition and need for achievement
id 1703	
a	<b>disturb the climate of cooperation</b>
b	fulfil the requirements of stress resistance
c	always promote teamwork
d	improves the coping process with personal failures

<b>799</b>	Which of the following personality characteristics makes crew decision making most effective?
id 1706	
a	General intelligence.
b	Competitiveness.
c	<b>Assertiveness.</b>
d	Friendliness.

<b>800</b>	A copilot has passed an upgrading course to become a captain. Which psychological consequence is most likely?
id 1708	
a	The increased command authority leads to a higher professionalism.
b	His/her self -concept is going to be stabilized because of the higher status as a captain.
c	<b>His/her self-concept is going to change because of new roles and tasks which have to be incorporated.</b>
d	An upgrading does not have any of the mentioned psychological consequences.

#### 40.3.5.3. Identification of hazardous attitudes (error prone)

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**801** | Which of the following responses lists most of the common hazardous thought  
id 2167 | patterns (attitudes) for pilots to develop?

- a Resignation, confidence, inattention
  - b Invulnerability, underconfidence, avoidance of making decisions, lack of situational awareness
  - c Machismo complex, resignation, confidence, self criticism
  - d Anti-authority, impulsiveness, invulnerability, resignation, machismo complex**
- 

**802** | Which of the following is NOT an hazardous attitude?  
id 2349 |

- a Macho
  - b Domination**
  - c Anti-authority
  - d Impulsivity
- 

**803** | Incapacitation is most dangerous when it is :  
id 2352 |

- a sudden
  - b obvious
  - c insinuating**
  - d intense
- 

#### 40.3.6. Human overload and underload

##### 40.3.6.1. Arousal

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**804** | The relationship between arousal and flying performance is  
id 1698 |

- a approximately sinusoidal
  - b approximately linear increasing
  - c approximately exponential
  - d approximately the form of an inverted U**
- 

**805** | In a complex task high levels of arousal  
id 1699 |

- a reduce failures
  - b improve performance
  - c lead to better decision-making
  - d narrow the span of attention**
- 

**806** | A high level of motivation is related  
id 1715 |

- a to complacency
  - b to high levels of intelligence
  - c to high levels of arousal**
  - d to monotony states
-

807 id 2169	If during flight a pilot is in a mental condition of "optimum arousal" he/she will be:
	<ul style="list-style-type: none"> <li>a in a confused mental state</li> <li>b unprepared to handle a difficult situation</li> <li>c approaching a condition of complacency or fatigue</li> <li><b>d prepared best to cope with a difficult task</b></li> </ul>
808 id 3982	An identical situation can be experienced by one pilot as exciting in a positive sense and by another pilot as threatening. In both cases:
	<ul style="list-style-type: none"> <li>a both pilots will experience the same amount of stress</li> <li>b both pilots will loose their motor-coordination</li> <li><b>c the arousal level of both pilots will be raised</b></li> <li>d the pilot feeling threatened, will be much more relaxed, than the pilot looking forward to what may happen</li> </ul>
809 id 4040	Please check the following statements: 1. A stressor causes activation 2. Activation stimulates a person to cope with it
	<ul style="list-style-type: none"> <li>a 1 and 2 are both not correct</li> <li>b 1 is correct, 2 is not correct</li> <li>c 1 is not correct, 2 is correct</li> <li><b>d 1 and 2 are both correct</b></li> </ul>
<b>40.3.6.2. Stress</b>	
810 id 431	What are easily observable indications of stress?
	<ul style="list-style-type: none"> <li>a Faster, deep inhalation, stabbing pain around the heart.</li> <li>b Lowering of the blood pressure.</li> <li><b>c Perspiration, flushed skin, dilated pupils, fast breathing.</b></li> <li>d Rising of the blood pressure, pupils narrowing, stabbing pain around the heart.</li> </ul>
811 id 732	Which of the following statements is true?
	<ul style="list-style-type: none"> <li><b>a Stressors accumulate thus increasing the likelihood to exhaustion.</b></li> <li>b Stressors are independent from each other.</li> <li>c Stress should always be avoided under any circumstances.</li> <li>d People are capable of living without stress.</li> </ul>
812 id 733	How should a pilot react, when suffering from chronic stress?
	<ul style="list-style-type: none"> <li>a Always consult a psychotherapist before the next flight.</li> <li>b Use moderate administration of tranquillizers before flight.</li> <li>c Ignore the particular stressors and increase your physical exercises.</li> <li><b>d Attempt to reduce the stress by using a concept which approaches the entire body and improves wellness.</b></li> </ul>
813 id 734	In case of in-flight stress, one should :
	<ul style="list-style-type: none"> <li>a only trust in oneself; beeing sure to know the own limits</li> <li><b>b use all available resources of the crew</b></li> <li>c demonstrate aggressiveness to stimulate the crew</li> <li>d always carry out a breathing exercise</li> </ul>

<b>814</b> id 735	<p>The behavioural effects of stress may include : -1 : manifestation of aggressiveness. -2 : a willingness to improve communication. -3 : a willingness for group cohesion. -4 : a tendency to withdrawl. -5 : inappropriate gestural agitation.</p> <p>The combination of correct statements is :</p> <p>a 1 and 4 are correct</p> <p><b>b 1,4 and 5 are correct</b></p> <p>c 1,2 and 3 are correct</p> <p>d 2,4 and 5 are correct</p>
<b>815</b> id 736	<p>The cognitive effects of stress may include : -1 : excessive haste. -2 : an improvement in memory. -3 : a complete block: action is impossible. -4 : a risk of focusing on a particular aspect. -5 : ease of decision-making. -6 : an increase in the rate of mistakes. The combination which brings together all correct statements is :</p> <p>a 3,4,5</p> <p>b 1,2,5</p> <p>c 2,3,5,6</p> <p><b>d 1,3,4,6</b></p>
<b>816</b> id 737	<p>What is the effect of stress on performance ? -1 : It always reduces performance. -2 : Optimum performance is obtained with optimum arousal. -3 : Excessive stress weakens performance. -4 : Insufficient stress weakens performance. The combination of correct statements is:</p> <p><b>a 2,3,4</b></p> <p>b 1,2,3</p> <p>c 1,3,4</p> <p>d 1,2,4</p>
<b>817</b> id 738	<p>What are the characteristics of the alarm phase of the stress reactions? -1 : increased arousal level as a result of adrenaline secretion. -2 : an increase in heart rate, respiration and release of glucose. -3 : a decrease in stress resistance. -4 : activation of the digestive system. -5 : secretion of cortisol to mobilize attention. The combination of correct statements is:</p> <p>a 2,4,5</p> <p>b 1,2</p> <p><b>c 1,2,3</b></p> <p>d 1,3,5</p>
<b>818</b> id 739	<p>What are the three phases of General Adaptation Syndrome ?</p> <p>a alarm, resistance, performance,</p> <p>b Alert, resistance, performance.</p> <p><b>c Alarm, resistance, exhaustion.</b></p> <p>d alert, resistance, exhaustion</p>
<b>819</b> id 740	<p>The organism is mobilized by a process known as:</p> <p>a GAF : General Adaptation Function.</p> <p>b NAS : Natural Adaptation Syndrome</p> <p>c GMS : General Mobilization Syndrome.</p> <p><b>d GAS : General Adaptation Syndrome</b></p>

<b>820</b> id 741	What is the most decisive factor in regard to a very demanding stress situation?
	<ul style="list-style-type: none"> <li>a The unexpected outcome of the situation.</li> <li>b The time available to cope with the situation.</li> <li>c The objective threat of the situation.</li> <li><b>d The subjective evaluation of the situation by the individual.</b></li> </ul>
<b>821</b> id 742	<p>Stress appears: -1 : only in a situation of imminent danger. -2 : only when faced with real, existing and palpable phenomenon. -3 : sometimes via imagination, the anticipation of a situation or its outcome. -4 : because of the similarity with a formerly experienced stressful situation The correct statement(s) is (are):</p> <ul style="list-style-type: none"> <li>a 1,2,4</li> <li>b 1,2</li> <li>c 2, 3</li> <li><b>d 3,4</b></li> </ul>
<b>822</b> id 743	<p>Cognitive evaluation which leads to stress is based on:</p> <ul style="list-style-type: none"> <li>a the capabilities of the individual and the solutions provided by the environment</li> <li>b the evaluation of the situation and the the state of fatigue of the individual</li> <li>c the evaluation of the capabilities of the individual and the time available</li> <li><b>d the evaluation of the situation and the evaluation of capabilities to cope with it</b></li> </ul>
<b>823</b> id 744	<p>Which of the following physical stimuli may cause stress reactions? -1 : noise. -2 : interpersonnal conflict. -3 : temperature. -4 : administrative problem. -5 : hunger. The combination of correct statements is:</p> <ul style="list-style-type: none"> <li>a 3,4,5</li> <li>b 1,3,4</li> <li><b>c 1,3,5</b></li> <li>d 2,3,5</li> </ul>
<b>824</b> id 745	<p>Which of the following statements concerning stress is correct?</p> <ul style="list-style-type: none"> <li>a Stress always creates a state of high tension which decreases cognitive and behavioural performance.</li> <li><b>b Stress will be evaluated differently depending on whether it improves or reduces performance.</b></li> <li>c Stress is evaluated as a positiv mechanism only in connection with precise tasks of the kind encountered in aeronautics</li> <li>d Stress is a necessary way of demonstrating one's own work.</li> </ul>
<b>825</b> id 746	<p>Acute stress quickly leads to</p> <ul style="list-style-type: none"> <li>a a decrease in the amount of resources mobilized to face the situation</li> <li><b>b the mobilization of resources required to cope with the stressor</b></li> <li>c a permanent state of incapacitation</li> <li>d a state of overactivation beyond the control of willpower</li> </ul>

826 id 747	<p>The resistance phase of stress reaction is characterized by: -1 : activation of the autonomic nervous system (ANS). -2 : testosterone secretion which enables fats to be converted into sugar. -3 : a sudden fall in stress resistance. -4 : the appearance of psychosomatic disorders when lasting over a prolonged time. The combination of correct statements is:</p> <p>a 1,2 and 3 are correct  <b>b 1 and 4 are correct</b>  c 2 , 3 and 4 are correct  d 3 and 4 are correct</p>
827 id 2095	<p>Stress may be defined as:</p> <p>a <b>a normal phenomenon which enables an individual to adapt to encountered situations</b>  b a poorly controlled emotion which leads to a reduction in capabilities  c a psychological phenomenon which only affects fragile personalities  d a human reaction which one must manage to eliminate</p>
828 id 2096	<p>What is a stressor?</p> <p>a A psychological problem developed in a situation of danger  b All external stimulation are stressors since they modify the internal equilibrium  <b>c An external or internal stimulus which is interpreted by an individual as being stressful</b>  d The adaptation response of the individual to his environment</p>
829 id 2097	<p>What triggers stress in humans?</p> <p>a Always the awareness of an emotion and a physiological activation (e. g. rapide heart rate)  b Objective stimulation from the environment regards of subjective perceptions  c Only strong excitations of the sensory organs: a flash of light, noise, the smell of smoke  <b>d The subjective interpretation an individual gives to a situation experienced</b></p>
830 id 2166	<p>In relation to the word 'stress' as it affects human beings, which of the following responses is correct?</p> <p>a Reactive stressors relate purely to a pilot's physical condition.  b All forms of stress should be avoided.  <b>c 'Stress' is a term used to describe how a person reacts to demands placed upon him/her.</b>  d Self imposed obligations will not create stress.</p>
831 id 2350	<p>Pilot stress reactions :</p> <p>a do not change with the environment or different situations but mainly with the characters themselves  b seem to be always the same for most pilots  c are related to an internationally recognized list of stressors where the top-ten items should be avoided by all means  <b>d differ from pilot to pilot, depending on how a person manages the particular stressors</b></p>
832 id 2365	<p>Fixation or tunnel vision is primarily to be expected when :</p> <p>a stress and motivation are medium  b stress is medium  <b>c stress is high</b>  d stress and motivation are low</p>



<b>833</b> id 2864	Stress is above all :  a a phenomenon which is specific to modern man b a psychosomatic disease that one can learn to control c a response by man to his problems, which automatically leads to a reduction in his performance <b>d the best adaptation phenomenon that man possesses for responding to the various situation which he may have to face</b>
<b>834</b> id 2865	Experiencing stress depends on:  a the fragility of individuals to certain types of stimulation <b>b the individual interpretation of the situation</b> c the individual's state of tiredness d the environment of the situation which the individual will live through or is in the process of living through
<b>835</b> id 2866	Stress is a reaction to adapt a specific situation. This reaction  a is purely physiological and automatic b is always linked to excessive fear c can only be controlled by medical treatment <b>d may include various psychological and physiological elements which one can learn to manage</b>
<b>836</b> id 2867	The individual's perception of stress depends on:  <b>a the subjectiv evaluation of the situation and one's abilities to cope with it</b> b the objectiv evaluation of the situation and one's abilities to cope with it c the pilot's increasing level of arousal d the conditions of the current situation only
<b>837</b> id 2868	Stress is a response which is prompted by the occurence of various stressors. Of these, which can be called physiological ?  <b>a Noise, temperature (low or high), humidity, sleep deprivation</b> b Noise, hunger, conflicts, a death c Heat, humidity, fatigue, administrative problems d Temperature, hunger, thirst, divorce
<b>838</b> id 2869	General Adaptation Syndrome is characterised by the following phases : -1 : alarm - 2 : alert phase -3 : resistance phase -4 : exhaustion phase -5 : vigilance phase  <b>a 2,3,4</b> <b>b 1,3,4</b> c 1,2,4,5 d 2,3,4,5
<b>839</b> id 3094	Which of the following statements in regard to motivation is correct?  a Low motivation will guarantee adequate attention management capabilities b Too much motivation may result in hypovigilance and thus in a decrease in attention c Motivation will reduce the task automation process <b>d Extremely high motivation in combination with excessive stress will limit attention management capabilities</b>

<b>840</b> id 3097	What are the effects of distress (overstress) ?
	<ul style="list-style-type: none"> <li>a It activates resources stored in memory</li> <li>b It reduces vigilance and focusses attention</li> <li><b>c It increases vigilance for a longer period than stress itself, but may focus attention</b></li> <li>d It has very little immediate effect on vigilance and attention</li> </ul>
<b>841</b> id 3147	The maintenance of man's internal equilibrium is called :
	<ul style="list-style-type: none"> <li>a Heterostasis</li> <li><b>b Homeostasis</b></li> <li>c Homeothermy</li> <li>d Poikilothermy</li> </ul>
<b>842</b> id 3623	Workload essentially depends on:
	<ul style="list-style-type: none"> <li>a the pilot's knowledge</li> <li>b the pilot's experience and the ergonomics of the system</li> <li><b>c the current situation, the pilot's expertise and the ergonomics of the system</b></li> <li>d the task and the day's parameters (weather report, aircraft load, type of flight, etc)</li> </ul>
<b>843</b> id 3973	A stress reaction is:
	<ul style="list-style-type: none"> <li>a the specific response of the body to every demand placed on a person</li> <li><b>b the non-specific response of the body to every demand placed on a person</b></li> <li>c the non-specific stimuli causing a human body to respond</li> <li>d the specific stimuli causing a human body to respond</li> </ul>
<b>844</b> id 3974	A person being exposed to extreme or prolonged stress factors can perceive:
	<ul style="list-style-type: none"> <li>a coping stress</li> <li><b>b distress (stress reactions)</b></li> <li>c eustress</li> <li>d stressors</li> </ul>
<b>845</b> id 3975	Getting uneasy will effect: 1. attention 2. concentration 3. memory 4. prudence
	<ul style="list-style-type: none"> <li>a 1 and 2 are correct</li> <li><b>b 1, 2, 3 and 4 are correct</b></li> <li>c 1 and 3 are correct</li> <li>d 2, 3 and 4 are correct</li> </ul>
<b>846</b> id 3976	The biological reaction to stress is identical regardless of the cause of stress. This mechanism occurs in three phases and is referred to, by Selye, as the "General Adaptation Syndrome". The sequence is:
	<ul style="list-style-type: none"> <li>a exhaustion phase - resistance phase - adaptation phase</li> <li>b alarm phase - denial phase - exhaustion phase</li> <li><b>c alarm phase - resistance phase - exhaustion phase</b></li> <li>d resistance phase - exhaustion phase - recovery phase</li> </ul>

847 id 3977	<p>According to the different phases of the "General Adaptation Syndrom" check the following statements: 1. During the alarm phase stress hormones (i.e. adrenalin) will cause a massiv release of glucose into the blood, an acceleration of pulse and blood pressure as well as an increase in the rate and depth of breathing 2. During the resistance phase the parasympathetic system uses a different type of hormone (cortisol) assisting to convert fat into sugar thus providing sufficient energy supply to the brain and body cells for sustained operation. 3. During the exhaustion phase the body has to be given time to eliminate the waste products which have been generated excessively during the two preceeding phases,</p> <p><b>a 1,2 and 3 are correct</b></p> <p>b 1 and 2 are correct, 3 is false</p> <p>c only 1 is correct</p> <p>d 2 and 3 are correct, 1 is false</p>
848 id 3979	<p>1. Adaptation is a new state of equilibrium after having coped with a stressful situation. 2. An individual's prospect of the situation and his/her abilities to cope with it will determine the type and strength of stress.</p> <p><b>a 1 and 2 are both correct</b></p> <p>b 1 is correct, 2 is false</p> <p>c 1 is false, 2 is correct</p> <p>d 1 and 2 are both false</p>
849 id 3980	<p>Learning to fly naturally induces stress in a student pilot because he is lacking experience. Manifestations of this type of stress are: 1. nervousness and chanellized attention 2. being rough at the controls 3. smoke and drink much more alcohol than usual 4. airsickness, lack of sleep</p> <p><b>a 1 and 2 are correct, 3 and 4 are false</b></p> <p>b 1 and 2 are false, 3 and 4 are correct,</p> <p>c 1, 2 and 3 are correct, 4 is false</p> <p>d 1, 2 and 4 are correct, 3 is false</p>
850 id 3981	<p>The level at which a pilot will experience a situation as stressful</p> <p><b>a does not depend on his capacity to absorb information</b></p> <p><b>b depends on the individual's perception of available abilities in comparison to the situational demands</b></p> <p>c depends on the level of demand but not on individual interpretation of the situational demands</p> <p>d depends on self-confidence alone</p>
851 id 3983	<p>Please check the following statements: 1. Psychosomatic means that mental and/or emotional stressors can be manifested in organic stress reactions. 2. Psychosomatic means that a physical problem is always followed by psychological stress.</p> <p><b>a 1 is correct, 2 is false</b></p> <p>b 1 and 2 are both correct</p> <p>c 1 is false, 2 is correct</p> <p>d 1 and 2 are both false</p>

<b>852</b> id 3984	1. Psychosomatic means that a physiological problem is followed by psychological stress. 2. Psychosomatic complaints hardly occur in professional aviation because of the strict selection for this particular profession .
<b>a</b>	1 and 2 are both correct
<b>b</b>	<b>1 and 2 are both not correct</b>
<b>c</b>	1 is correct 2 is not correct
<b>d</b>	1 is not correct 2 is correct

<b>853</b> id 6341	What does stress management involve?
<b>a</b>	A constant stress prevention
<b>b</b>	A complete rejection of stress
<b>c</b>	The recognition and removal of stress
<b>d</b>	<b>Recognising stress, accepting it and developing a coping strategy</b>

<b>854</b> id 6342	A person can be expected to carry out the following pairs of tasks simultaneously:
<b>a</b>	<b>fly straight and level and talk to ATC</b>
<b>b</b>	Fly a holding pattern manually and solve a complex problem
<b>c</b>	read about one subject while talking about another
<b>d</b>	Talk to passengers and solve a complex problem

<b>855</b> id 6380	Which of the following can be called a "stressor"?
<b>a</b>	Increased level of adrenaline
<b>b</b>	High heart rate
<b>c</b>	Both 1) and 2)
<b>d</b>	<b>Increased cockpit noise</b>

<b>856</b> id 6394	Which of the following statements is correct?
<b>a</b>	Stress has a negative impact on our performance
<b>b</b>	<b>Stress is cumulative</b>
<b>c</b>	Long-term stress is not likely to cause illness
<b>d</b>	Acute stress will make us less able to handle a critical situation during flight

#### 40.3.6.3. Fatigue

<b>857</b> id 1694	A fatigued pilot
<b>a</b>	<b>will show signs of increased irritability</b>
<b>b</b>	is acting similar as when encountering a state of depression
<b>c</b>	will get precordial pain
<b>d</b>	considerably increases the ability to concentrate

<b>858</b> id 3107	What is the effect of tiredness on attention ?
<b>a</b>	It leads to one's attention being dispersed between different centres of interest
<b>b</b>	It increases the ability to manage multiple matters
<b>c</b>	<b>It reduces the ability to manage multiple matters</b>
<b>d</b>	It has no specific effects on attention

<b>859</b> id 3108	Which of the following statements concerning tiredness is correct ?
	<ul style="list-style-type: none"> <li>a Tiredness is always the result of an intellectual overload</li> <li><b>b Tiredness is a subjective sensation which is reflected in hypovigilance or in poor management of intellectual capabilities</b></li> <li>c Tiredness is the consequence of a diminution of performance</li> <li>d Tiredness is an objective psychophysiological symptom of a reduction in attention capabilities</li> </ul>
<b>40.3.6.4. Body rhythm and sleep</b>	
<b>860</b> id 427	Flying from Frankfurt to Moscow you will have a lay-over of 4 days. What time measure is relevant for your circadian rhythm on the 3. day?
	<ul style="list-style-type: none"> <li>a ZT (zonal time).</li> <li>b MEZ (middle european time).</li> <li><b>c LT (local time).</b></li> <li>d UTC (universal time coordinated).</li> </ul>
<b>861</b> id 468	In order to completely resynchronise with local time after zone crossing, circadian rhythms require
	<ul style="list-style-type: none"> <li>a more time when flying from east to west</li> <li><b>b less time when flying from east to west</b></li> <li>c about one day per 2.5 hours of time shift</li> <li>d about one week per 2.5 hours of time shift</li> </ul>
<b>862</b> id 1692	The readjustment of the biological rhythms after a time shift is normally more difficult
	<ul style="list-style-type: none"> <li><b>a with flights towards the East</b></li> <li>b with flights towards the West</li> <li>c with flights towards the North</li> <li>d with flights towards the South</li> </ul>
<b>863</b> id 1693	During paradoxical sleep
	<ul style="list-style-type: none"> <li>a the tone of the muscles is similar to that in the waking state</li> <li><b>b rapid eye movements can be observed</b></li> <li>c respiration is very regular</li> <li>d the rhythm of the heart is very regular</li> </ul>
<b>864</b> id 1751	The physiological rhythms of a pilot in a new time zone will resynchronise to this new time zone at a rate of about
	<ul style="list-style-type: none"> <li>a 3 - 3.5 hours a day</li> <li>b 2 - 2.5 hours a day</li> <li><b>c 1 - 1.5 hours a day</b></li> <li>d 4 - 4.5 hours a day</li> </ul>
<b>865</b> id 1752	The duration of a period of sleep is governed primarily by
	<ul style="list-style-type: none"> <li>a the number of points you have in your 'credit/deficit' system</li> <li>b the duration of your previous sleep</li> <li>c the amount of time you have been awake</li> <li><b>d the point within your circadian rhythm at which you try to sleep</b></li> </ul>

866 id 3102	Of the following statements concerning the effects of circadian rhythms on performance, we know that :
	<p>a Sensorimotor and intellectual performance are better in the morning and are sensitive to the duration of the sleep state</p> <p>b Sensorimotor performance is better in the morning whereas intellectual performance is better in the evening</p> <p><b>c Sensorimotor performance is better in the evening whereas intellectual performance is better in the morning</b></p> <p>d Sensorimotor and intellectual performance are better in the evening and very sensitive to the duration of the waking period</p>
867 id 3103	<p>In order to minimize the effects of crossing more than 3-4 time zones with a layover more than 24 hrs, it is advisable to : 1. Adapt as quickly as possible to the rhythm of the arrival country 2. Keep in swing with the rhythm of the departure country for as long as possible 3. Maintain regular living patterns (waking ,sleeping alternation and regular meal pattern ) 4. Try to sleep as much as possible to overcome negative arousal effects</p> <p>a 2,3</p> <p>b 1,3</p> <p>c 2,4</p> <p>d 1,4</p>
868 id 3104	<p>Concerning circadian rhythm disruption (jet lag), the effects of adjustment to destination time : 1. are longer for western rather than eastern flights 2. are longer for eastern rather than western flights 3. vary little between individuals 4. may vary greatly between individuals</p> <p>a 2,3</p> <p>b 1,3</p> <p>c 1,4</p> <p><b>d 2,4</b></p>
869 id 3105	<p>What seem to be the main roles of deep sleep ?</p> <p>a Via physical recovery, it is characterised by an alternation of dream phases and paradoxical phases</p> <p>b It is confined to physical recuperation associated with fatigue</p> <p>c Its main role is associated with activities of memory activities and restoration of attention capabilities</p> <p><b>d It essentially allows for physical recovery and the reconstitution of neuron energy reserves</b></p>
870 id 3106	<p>What are the main effects of a lack of sleep loss on performance ?</p> <p>a It increases fatigue and concentration difficulties, but facilitates stress management by muscular relaxation,</p> <p><b>b It increases fatigue, concentration and attention difficulties, the risk of sensory illusions and mood disorders</b></p> <p>c It causes muscular spasms</p> <p>d It reduces concentration and fatigue only with sleep loss greater than 48 hours</p>
871 id 3966	<p>The human circadian rhythm is based on a cycle of about:</p> <p><b>a 24 hours</b></p> <p>b 1.5 hours</p> <p>c 12 hours</p> <p>d 48 hours</p>

<b>872</b> id 3967	Disturbance of the biological clock appears after a: 1. bad night's sleep 2. day flight Amsterdam - New York 3. day flight Amsterdam - Johannesburg 4. night flight New York - Amsterdam
	<p><b>a 2 and 4 are correct</b></p> <p>b 1,2 and 3 are correct</p> <p>c 1 and 3 are correct</p> <p>d 1,2,3 and 4 are correct</p>
<b>873</b> id 3969	Sleeplessness or the disruption of sleeping patterns 1. can lead to symptoms of drowsiness, irritability and lack of concentration 2. will make an individual more prone to make errors
	<p><b>a 1 and 2 are both correct</b></p> <p>b 1 is not correct, 2 is correct</p> <p>c 1 is correct, 2 is not correct</p> <p>d 1 and 2 are both not correct</p>
<b>874</b> id 3970	Check the following statements: 1. A person experiencing sleep loss is unlikely to be aware of personal performance degradation 2. Performance loss may be present up to 20 minutes after awaking from a short sleep (nap)
	<p>a 1 is correct 2 is false</p> <p><b>b 1 and 2 are both correct</b></p> <p>c 1 is false, 2 is correct</p> <p>d 1 and 2 are both false</p>
<b>875</b> id 3971	The sleep cycles repeat during the course of a night's sleep. 1. Each succeeding cycle contains a greater amount of REM- sleep. 2. Frequent interruption of the REM-sleep can harm a human being in the long run.
	<p>a 1 is correct 2 is not correct</p> <p><b>b 1 and 2 are both correct</b></p> <p>c 1 is not correct 2 is correct</p> <p>d 1 and 2 are both not correct</p>
<b>876</b> id 3972	1. REM-sleep becomes shorter with any repeated sleep cycle during the night. 2. REM-sleep is more important for the regeneration of mental and physical functions than all the other sleep stages are.
	<p>a 1 and 2 are false</p> <p>b 1 and 2 are both correct</p> <p>c 1 is correct 2 is not correct</p> <p><b>d 1 is not correct 2 is correct</b></p>
<b>877</b> id 6315	Circadian cycles cause body temperature to change. At approximately what time of day is our temperature at its lowest value?
	<p>a 1400</p> <p>b 800</p> <p><b>c 0500</b></p> <p>d 0200</p>

<b>878</b> id 6319	For what reason is it important to be familiar with the circadian rhythm of body temperature?
	<ul style="list-style-type: none"> <li>a Peak performance occurs when body temperature remains constant</li> <li><b>b Peak performance occurs at the time of rising or high body temperature</b></li> <li>c Sleep usually occurs at times of rising or high body temperature</li> <li>d Falling asleep is easiest when body temperature is stable</li> </ul>
<b>879</b> id 6338	Following a flight that crosses numerous time zones, the associated shifting of Zeitgebers helps body clock re-synchronisation to the new local time at the rate of:
	<ul style="list-style-type: none"> <li>a 3 hours per day</li> <li><b>b 1.5 hours per day</b></li> <li>c 4 hours per day</li> <li>d 1/2 hour per day when the shift has been eastward and 1 hour per day if the shift has been westward</li> </ul>
<b>880</b> id 6340	Which of the following routes will cause the worst Jet lag?
	<ul style="list-style-type: none"> <li>a Flight from Copenhagen to Cape Town</li> <li><b>b Flight from Oslo to Tokyo</b></li> <li>c Flight from London to Los Angeles</li> <li>d Flight from Lisbon to Tallinn</li> </ul>
<b>881</b> id 6369	Which one of the following statements is correct regarding REM sleep?
	<ul style="list-style-type: none"> <li>a REM sleep primarily re-vitalises your body, not your brain.</li> <li><b>b REM sleep re-vitalises your brain after strenuous mental activity.</b></li> <li>c REM sleep consists of four stages.</li> <li>d REM sleep creates a high degree of muscular activity in your body.</li> </ul>
<b>882</b> id 6382	Which of the following is correct regarding the five stages in the sleep patterns?
	<ul style="list-style-type: none"> <li><b>a About 50% of sleep is stage 2</b></li> <li>b Stage four is only reached after approximately four hours</li> <li>c REM sleep starts early in the sleep pattern and slowly changes to stage three or four</li> <li>d "Paradoxical sleep" is similar to stage 1 sleep</li> </ul>
<b>883</b> id 6386	On the inverted U-curve, also called the Yerkes-Dodson curve, being on the extreme left side indicates:
	<ul style="list-style-type: none"> <li><b>a Sleep</b></li> <li>b Anxiety</li> <li>c Fitness</li> <li>d Anger or despair</li> </ul>
<b>884</b> id 6388	With reference to the sleep/wake cycle of "credit" and "debit" system, 6 hours sleep will put the body in credit by:
	<ul style="list-style-type: none"> <li>a 6 hours</li> <li>b 8 hours</li> <li>c 10 hours</li> <li><b>d 12 hours</b></li> </ul>



<b>885</b> id 6390	When is your body temperature at its lowest?
	<ul style="list-style-type: none"> <li>a In the afternoon</li> <li>b Late in the evening</li> <li>c Around 9 a.m.</li> <li><b>d Early in the morning</b></li> </ul>
<b>40.3.6.5. Fatigue and stress management</b>	
<b>886</b> id 463	Stress management programmes usually involve:
	<ul style="list-style-type: none"> <li>a the use of psychoactive drugs</li> <li>b only the removal of stress</li> <li>c only the prevention of stress</li> <li><b>d the prevention and/or the removal of stress</b></li> </ul>
<b>887</b> id 506	Using a checklist prior start is a contribution to
	<ul style="list-style-type: none"> <li>a workload, because using checklists will increase the pilot's workload prior take-off</li> <li>b stress, because time pressure prior take-off is always present</li> <li><b>c safety, because the concentration on the check list items will draw the pilot's attention to flight related tasks, reducing distraction from personal stress</b></li> <li>d frustration</li> </ul>
<b>888</b> id 507	The human performance is generally
	<ul style="list-style-type: none"> <li>a always better in the evening than in the morning</li> <li>b better very early in the morning</li> <li><b>c better when relaxed, independent of the period of day</b></li> <li>d constant throughout the day</li> </ul>
<b>889</b> id 3138	What are the main strategies for adapting to time constraints ?
	<ul style="list-style-type: none"> <li>a The preparation of action and the application of procedures</li> <li>b The preparation of action and time management</li> <li>c The prioritisation of tasks and the application of procedures</li> <li><b>d The preparation of action and the prioritisation of tasks</b></li> </ul>
<b>890</b> id 3978	If coping with a stress situation is impossible, one will remain in the state of:
	<ul style="list-style-type: none"> <li>a adaptation</li> <li><b>b distress</b></li> <li>c hypoxia</li> <li>d eustress</li> </ul>

## 40.3.7. Advanced cockpit automation

### 40.3.7.1. Advantages and disadvantages (criticalities)

<b>891</b> id 2870	If man is compared with a computer, it can be said that man :  <b>a</b> has less effective means of data collection than the computer <b>b</b> has less effective means of action (output) than the computer <b>c has more effective means of action (output) and is above all capable of considerable synergy</b> <b>d</b> is relatively limited compared with a computer, that means of data collection or means of action are referred to
<b>892</b> id 3041	Which of the following operations are performed more effectively by people than by automatic systems ? 1. Qualitative decision-making 2. Waiting for an infrequent phenomenon 3. Monitoring to ensure that certain values are not exceeded 4. Detections of unusual conditions (smell, noise, etc.)  <b>a</b> 3,4 <b>b</b> 1,2 <b>c 1,4</b> <b>d</b> 2,3,4
<b>893</b> id 3042	Which of the following operations are performed more effectively by automatic systems than by people ? 1. Waiting for an infrequent phenomenon 2. Long term controlling of a set value (e.g holding of trajectory) 3. Monitoring to ensure that certain values are not exceeded (e.g holding of flight path) 4. Qualitative decision-making  <b>a</b> 3,4 <b>b</b> 2,4 <b>c 1,2,3</b> <b>d</b> 2,3,4
<b>894</b> id 3044	The performance of the man machine system is above all :  <b>a</b> a combination in which the pilot must keep the main repetitive tasks and automated systems under his control in line with rule-based behaviour <b>b</b> a balanced combination between someone actively engaged in his work and automated systems which serve to control the pilot's workload <b>c</b> a combination which must make the pilot available for the sphere in which he is most qualified, namely checking departures from the normal operating range <b>d a combination which is based on decreasing the pilot's workload and increasing his time for supervision</b>
<b>895</b> id 3045	Which of the following drawbacks are associated with automation ? 1. Reduced competence in manually controlling the aircraft 2. Increased likelihood of slips while programming automatic systems 3. Difficulties in adapting to the use of a sidestick 4. General decrease in technical reliability  <b>a</b> 1,4 <b>b 1,2</b> <b>c</b> 2,3,4 <b>d</b> 1,3

### 40.3.7.2. Automation complacency

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- 896** | How can a pilot avoid automation complacency?  
id 1711
- a Always fly the whole flight manually to remain in man-machine loop
  - b Always try to enhance your aviation related knowledge during low workload periods
  - c Regard the automatic system as additional crew members that needs to be crosschecked as well**
  - d Nothing, because it is system-inherent
- 

- 897** | A high degree of cockpit automation may alter the traditional tasks of the pilots in a way, that  
id 1719
- a it is guaranteed that the crew maintains always situational awareness
  - b the attention of the cockpit crew will become reduced with the consequence of 'being out of the loop'**
  - c Crew Coordination can be neglected on long haul flights without compromising safety
  - d the crew can pay more attention to solve the problem in an abnormal situation without monitoring the automatic systems
- 

- 898** | One negative aspect of the highly automated cockpit results in :  
id 2353
- a complacency among the crewmembers**
  - b pilots disregarding the automatic equipment
  - c constantly high crew overload with regard to the monitoring tasks
  - d less experienced crews because of more transparent system details
- 

- 899** | Which of the following persons can be referred to as being complacent?  
id 6387
- a A car driver driving on red light, but he is looking to both left and right side when slowly passing the crossroads
  - b A car driver driving on green light, but he is not looking neither to the left nor to the right as he passes the light. It is quite safe to drive on green light.**
  - c A pilot who has flown the same route for many years
  - d A pilot who enjoys his job and feels safe

### 40.3.7.3. Working concepts

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- 900** | As a result of automation in cockpits,  
id 3043
- a communication and coordination call for an even greater effort on the part of the crew members**
  - b man-man communication has been significantly improved
  - c coordination between the members is facilitated by the provision of more precise and more important information
  - d communication and coordination have clearly improved in man-man and man-machine relations