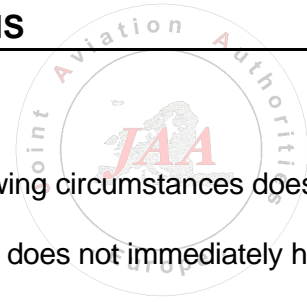


## HUMAN PERFORMANCE AND LIMITATIONS

---



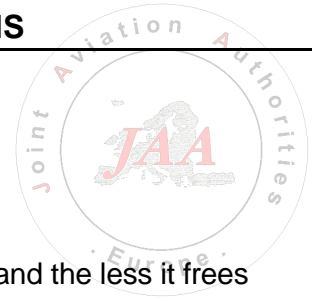
- 1 Stress is a frequent aspect of the pilot's job. Under which of the following circumstances does it occur?
  1. Stress occurs whenever the pilot must revise his plan of action and does not immediately have a solution
  2. Stress occurs with inexperienced pilots when the situational demands exceed 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/she faces.
  - A 1 and 2 are correct, 3 is false
  - B 1, 2 and 3 are correct
  - C 1, 2, 3 and 4 are correct
  - D Only 1 is false
  
- 2 The total pressure of a mixture of gases is equal to the sum of the partial pressures of the gases in the mixture. This is:
  - A Graham's law
  - B Dalton's law
  - C Henry's law
  - D Boyle Mariotte's law
  
- 3 Dry air is a mixture of gases. Their volume percentage is about:
  - A 18% oxygen, 80% nitrogen, 2% other gases
  - B 19% oxygen, 80% nitrogen, 1% other gases
  - C 21% oxygen, 78% nitrogen, 1% other gases
  - D 25% oxygen, 74% nitrogen, 1% other gases
  
- 4 Following a rapid decompression at 30.000 feet, the time of useful consciousness would be about:
  - A between 45 seconds and 1 minute 30 seconds
  - B 10 to 12 minutes
  - C 5 to 10 minutes
  - D 3 to 5 minutes
  
- 5 A pilot can prevent hypoxia by:
  - A using additional oxygen when flying above 10000 ft
  - B relying on the body's built in warning system recognizing any stage of hypoxia
  - C swallowing, yawing and applying the Valsalva method
  - D not exceeding a cabin pressure of 20 000 ft
  
- 6 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:
  - A 48 hours
  - B 12 hours
  - C 6 hours
  - D 24 hours



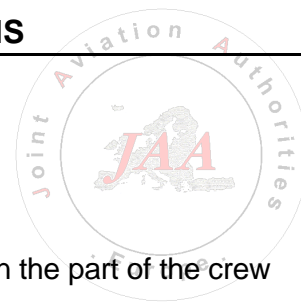
- 7 During hyperventilation:
- A acidity level of the blood is reduced
  - B alkalinity level of the blood is reduced
  - C oxygen concentration of the blood is below normal
  - D nitrogen concentration of the blood is above normal
- 8 The rate and depth of breathing is primarily regulated by the concentration of:
- A oxygen in the cells
  - B water vapour in the alveoli
  - C nitrogen in the air
  - D carbon dioxide in the blood
- 9 What is meant by presbycusis?
- A Gradual onset of long-sightedness with age.
  - B Total loss of hearing in both ears due to disease.
  - C Total loss of hearing in one ear due to use of a headset in the cockpit.
  - D Gradual loss of hearing with age.
- 10 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 sources of light
- A 2
  - B 2,3,4
  - C 1,2,4
  - D 1,3,4
- 11 Angular accelerations are perceived by:
- A the semi circular canals
  - B the cochlea
  - C the otholiths
  - D the receptors in the skin and the joints
- 12 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
- A 1,4
  - B 2,3,4
  - C 2
  - D 3,4



- 13** During poor weather conditions a pilot should fly with reference to instruments because:
- A** his attention will be distracted automatically under these conditions
  - B** the danger of a "greying out" will make it impossible to determine the height above the terrain
  - C** perception of distance and speed is difficult in an environment of low contrast
  - D** pressure differences can cause the altimeter to give wrong information
- 14** On experiencing a vestibular illusion in straight and level flight, it is recommended that:
- A** you rely on your sensations only, as humans are much more reliable than flight instruments
  - B** you close your eyes for a moment so that the oculo-vestibular conflict disappears
  - C** you tilt your head to the side opposite to the turn to nullify the stimulus causing the illusion
  - D** you avoid head movements and rely on your instruments
- 15** Among the symptoms of hypoglycaemia are:
- A** Headache and lack of concentration
  - B** Double vision and puffiness around the eyes
  - C** Severe eye and head aches
  - D** Difficulty in focussing on near-by objects
- 16** To prevent gastro-intestinal problems in tropical climates you should:
1. not eat salad or raw vegetables
  2. always peel fruit
  3. only eat food that has been properly cooked
  4. avoid ice-cream
- Which of the following lists all the correct answers?
- A** 1, 2, 3 and 4
  - B** 1 and 2
  - C** 1, 2 and 3
  - D** 2 and 4
- 17** Alcohol, when taken simultaneously with drugs, may
- A** intensify the effects of the drugs
  - B** compensate for side effects of drugs
  - C** show undesired effects only during night flights
  - D** increase the rate of alcohol elimination from the blood



- 18** The acquisition of a motor programme (skill) will mean that:
- A** the more behaviour is automated, the more it requires attention and the less it frees resources
  - B** the less behaviour is automated, the less it requires attention and the more it frees resources
  - C** the more behaviour is automated, the less it requires conscious attention and thus the more it frees mental resources
  - D** the more behaviour is automated, the more it requires attention and the more it frees resources
- 19** The first stage in the information process is
- A** the recognition of information
  - B** selective attention
  - C** perception
  - D** sensory stimulation
- 20** Working memory:
- A** is sensitive to interruptions which may erase all or some of its contents
  - B** is unlimited in size
  - C** is unlimited in duration
  - D** varies considerably in size between an expert pilot and a novice pilot
- 21** Which of the following statements summarises the impact that motivation may have on attention ?
- A** It increases alertness and attention
  - B** It only facilitates attention in extreme cases (risk of death)
  - C** Motivation has only a small effect on attention, but it facilitates alertness
  - D** It stimulates attention but may lead to phases of low arousal
- 22** To resynchronize a circadian rhythm, it takes more time after:
- A** south-north flights
  - B** north-south flights
  - C** westbound flights
  - D** eastbound flights
- 23** Stress management programmes usually involve:
- A** the prevention and/or the removal of stress
  - B** only the removal of stress
  - C** only the prevention of stress
  - D** the use of psychoactive drugs



- 24** As a result of automation in cockpits,
- A** communication and coordination call for an even greater effort on the part of the crew members
  - B** it is easier for the captain to monitor the work of the first officer and vice versa
  - C** the need for communication between crew members has been decreased
  - D** communication and coordination have clearly improved in man-man and man-machine relations

sample  
questions