

**EAST AFRICA SCHOOL OF AVIATION
HUMAN FACTORS EXAM**

SECTION A

1. As a cause of accidents , the human factor
 - A. Which is cited in current statistics, applies to the crew and ATC only
 - B. Is cited in approximately 70 – 80 % of aviation accidents
 - C. Has increased considerably since 1980
 - D. Plays a negotiable role in commercial aviation accidents. It is much more important in general aviation
2. With reference to the SHELL model S represents:
 - A. Self-awareness which includes safety
 - B. Symbology which includes safety
 - C. Software which includes checklist
 - D. Security
3. Oxygen combined with hemoglobin is transported by:
 - A. Plasma
 - B. White blood cells
 - C. Red blood cells
 - D. Platelets
4. How can a pilot increase his tolerance to +G forces
 - A. Tighten shoulder harness
 - B. Take an upright seat position
 - C. Lean upper body forward
 - D. Tightening of stomach muscles
5. Barotrauma of the middle ear is more likely to occur
 - A. In sudden climbs
 - B. When descending rapidly
 - C. During a long high altitude climb
 - D. When climbing
6. Which of the following laws explains bubbles of nitrogen coming out of solution in the body tissues due to a decrease in atmospheric pressure
 - A. Boyles law
 - B. Henrys law
 - C. Daltons law
 - D. Charles law
7. Dry air is a mixture of gasses, with volumes of about
 - A. 19% oxygen, 87% nitrogen , 1% other gasses
 - B. 25% oxygen, 74% nitrogen, 1% other gasses
 - C. 0.03% oxygen 21% nitrogen, 1% other gasses
 - D. 21% oxygen, 78% nitrogen 1% other gasses
8. Hypoxia is caused by;

- A. A lack of oxygen in ambient air
 - B. A lack of red blood cells in the blood or decreased ability of hemoglobin to transport oxygen
 - C. Too much CO₂ in the blood
 - D. Increased oxygen partial pressure
9. The bends as a symptom of decompression sickness consists of:
- A. Pain in the thorax and cough
 - B. Loss of peripheral vision
 - C. CNS disturbances
 - D. Pain in the joints
10. Hemoglobin has affinity to carbon monoxide of.....times over oxygen
- A. 500-1000
 - B. 5-10
 - C. 210-250
 - D. 50-75
11. Photosensitive cells responsible for night vision are:
- A. Fovea
 - B. Rods and cones
 - C. Cones
 - D. Rods
12. Tinnitus is:
- A. Ringing in the ear
 - B. Intensive hearing ability
 - C. Very sensitive hearing
 - D. Vibrations in eardrum
13. Alcohol when simultaneously taken with drugs
- A. Compensate for side effects of drugs
 - B. Intensify the effects of drugs
 - C. Increase the rate of alcohol elimination in the blood
 - D. Show side effects at night
14. What are the two types of attention
- A. Divided and behavioral
 - B. Divided and selective
 - C. Divided and intuitive
 - D. Attentive and flexible
15. Physiological stress includes
- A. Heat, humidity, fatigue
 - B. Noise temperature, lack of sleep
 - C. Temperature, hunger, thirst
 - D. Noise, hunger, death
16. Why is Hypoxia a danger to pilots flying solo?
- A. Since the first signs of hypoxia are generally hard to detect
 - B. A solo pilot is prone to illusions'

- C. Difficulty in controlling the aircraft
 - D. Hypoxia improves night vision therefore the pilot will not be in danger
17. Hyperventilation causes
- A. Hypochondria
 - B. Acidosis
 - C. Reduction in CO₂ in the blood
 - D. Increase in CO₂ in the blood
18. Anxiety and fear can cause?
- A. Hypoxia
 - B. Hyperventilation
 - C. Spatial disorientation
 - D. Myopia
19. Human error rates during the performance of a simple task and repetitive task can normally be expected to be approximately:
- A. 1 in 100
 - B. 1 in 200
 - C. 1 in 1000
 - D. 1 in 500
20. Information stays in the short term memory:
- A. Less than 1 second
 - B. Around 24 hours
 - C. From 5 to 10 seconds
 - D. About 20 seconds
21. Alcohol degrades
- A. Slow wave sleep
 - B. Paradoxical sleep
 - C. Stage 1 sleep
 - D. Stage 2 and 3 sleep
22. Flying with a 'common cold'
- A. Is permitted as long as you are on treatment with antibiotics
 - B. Increase the risk of hyperventilation
 - C. May lead to incapacitation due to severe sinus or ear pain
 - D. Will cause infection to other crew members if you are flying above 10,000ft
23. Positive G forces will cause blood in the brain to:
- A. Remain constant
 - B. Increase and decrease
 - C. Decrease
 - D. Increase
24. When suffering from hypoxia short term memory impairment starts at approximately.....
- A. 12,000ft
 - B. 10,000ft
 - C. 5000ft

- D. Between 3,000ft to 5,000ft
25. The chokes are associated with:
- A. Noise induced hearing loss(NIHL)
 - B. DCS
 - C. Oxygen loss
 - D. Blockage of the alveoli
26. The most important sense of spatial orientation is?
- A. Hearing and balance
 - B. Sight
 - C. 'Seat of of the pants
 - D. All senses are equally important
27. A dispatcher is 2 meters tall and weighs 80kgs, his/her BMI is:
- A. 22
 - B. 24
 - C. 18
 - D. 20
28. The best method of losing weight is:
- A. Not eating regular or fasting
 - B. Take plenty of exercise
 - C. Go on a crash diet
 - D. Eat less
29. Which graph shows the relationship between arousal and performance?
- A. A U shaped graph
 - B. An inverted U shaped graph
 - C. A straight line graph
 - D. An M shaped graph
30. What is the ' cocktail party 'effect?
- A. Ability to divide attention when surrounded by many different stimuli
 - B. The ability to hear, for example your own name or call sign while concentrating on something else
 - C. Ability to divide attention when surrounded by a number of stressor's
 - D. Ability to divide attention when surrounded by noise
31. Expectation can affect perception:
- A. True
 - B. False
 - C. True and false
 - D. None of the above
32. Medical condition such as high blood pressure, coronary problems and diabetes are associated with:
- A. Cholera
 - B. Obesity
 - C. Hypoxia

- D. Yellow fever
33. Personality is based on:
1. Heredity
 2. Upbringing
 3. Experience
 4. Childhood
- A. 1,2,3 and 4 are correct
 - B. None of the listed is correct
 - C. 2,3,4 are correct
 - D. 1, 2, 3 are correct
34. A person being exposed to prolonged stress factors can perceive:
- A. Coping stress
 - B. Disorientation
 - C. Distress
 - D. Stressors
35. How long is a sleep cycle?
- A. 90 minutes
 - B. 24 hours
 - C. 60 minutes
 - D. 30 minutes
36. Hypotension is:
- A. High blood pressure
 - B. High pulse rate
 - C. Low blood pressure
 - D. Low pulse rate
37. What is the percentage of oxygen in the atmosphere at 35,000ft?
- A. 21%
 - B. 25%
 - C. 32%
 - D. Approximately 16%
38. Anemic Hypoxia can be:
- A. Brought by attitude
 - B. Caused by decompression
 - C. Caused by smoking
 - D. Brought on by fatigue
39. Internal respiration is:
- A. The brains control of pulse rate
 - B. The exchange of oxygen with CO₂ and H₂O
 - C. Sighing
 - D. The retention of breath
40. What statement is correct about the use of cockpit lighting system?
- A. The use if regular white light, such as flashlight will impair night vision

- B. Reducing the lighting intensity to a minimum level will eliminate blind sports
- C. Coloration shown on maps is least affected by use of direct red lighting
- D. None of the above statements is correct

SECTION B

1. List the factors that determine the pulse rate in a normal male adult (6marks)
2. Describe the difference between somatogravic and somatogyral illusion (4marks)
3. With the aid of a diagram describe the relationship between arousal and performance(4marks)
4. List 6 symptoms of motion sickness (6marks)
5. Discuss how carbon monoxide as a gas is considered dangerous (2marks)
6. The TUC will depend on an individual and will be affected by (4marks)
7. List and discuss the 4 elements in a shell model (4marks)