AS 200 Chapter 3 Lessons 1
Human Physiology and Air Flight
Air Force JROTC

1. What would you encounter if you were to travel from Earth's surface through the exosphere to the edge of space?

   a. higher and higher pressure the higher you traveled
   b. lower and lower pressure the higher you traveled *
   c. no change in pressure the higher you traveled
   d. a switch between low and high pressure with every 1,000 feet gained

2. What causes gases in the human body to expand when an aircraft climbs?

   a. the drop in atmospheric pressure *
   b. the decrease in temperature
   c. the same force of lift that operates on airfoils acts on air molecules
   d. the rate of climb

3. What was the name of the British chemist who, in 1803, learned that the amount of gas dissolved in a volume of liquid is proportional to the pressure of the gas?

   a. Isaac Newton
   b. William Henry *
   c. John Dalton
   d. Robert Boyle

4. What is the respiratory system's main purpose?

   a. to circulate blood through the body
   b. to bring blood to the heart
   c. to take in oxygen and get rid of carbon dioxide *
   d. to take in oxygen

5. What are the cardiovascular system's principal parts?

   a. heart, pulmonary arteries, pulmonary veins, and capillaries *
   b. liver, heart, kidney, and bladder
   c. heart, pulmonary veins, lungs, and pancreas
   d. brain, heart, lungs, and liver

6. What is <u>not</u> a symptom of hypoxia?

   a. headache and sweating
   b. dizziness and lightheadedness
   c. tingling in the fingers and toes and poor coordination
   d. mental alertness *

7. How can you reduce any pain associated with sinus block?

a. a quick ascent
b. painkillers
c. a slow descent *
d. blowing the nose

8. What happens to an object such as a plane way up in the sky as it plummets toward Earth?

a. surpasses terminal velocity
b. gains more than 1 G *
c. loses acceleration as it reaches denser air
d. creates its own air pressure

9. What happens if the body isn't able to respond quickly enough to +Gz?

a. One of the first signs is a progressive loss of vision. *
b. The pilot may experience a wider range of vision.
c. The pilot may vomit.
d. The pilot may experience enhanced motor control.

10. Which system sends signals from the skin, joints, and muscles to the brain?

a. cardiovascular
b. visual
c. somatosensory *
d. vestibular

11. Why do student pilots sometimes suffer from airsickness?

a. because the brain receives conflicting messages about the body's true position
b. because the brain receives constant updates based on the body's posture and movement
c. because decreasing pressure with altitude makes it more difficult to breathe
d. because they aren't used to the motion and spatial orientation clues *

12. What are common signs of dehydration?

a. headache, fatigue, cramps, sleepiness, and dizziness *
b. alertness and hunger
c. confusion, disorientation, and hunger
d. dizziness, cramps, and alertness

13. Where can the body take in more air molecules with each breath?

a. at higher altitudes where the air is thin
b. at higher altitudes where the air contains fewer molecules
c. at lower altitudes with supplemental oxygen use
d. at lower altitudes where the air density and pressure are greater *

14. Why do passenger airliners fly above the clouds in the stratosphere?

a. for a better view of the land below
b. to avoid weather *
c. to reach a greater speed
d. to make it easier for passengers to breathe

15. What is partial pressure?

a. the amount of pressure each gas applies individually *
b. the amount of gas dissolved in a volume of liquid
c. the pressure between the sinuses and the middle ear
d. the pressure differences between the middle ear and the frontal sinuses

16. What is one of the cardiovascular system's main functions?

a. to prevent the body from overheating
b. to use blood to move carbon dioxide from the lungs to body tissues
c. to move oxygen from the body tissues to the lungs
d. to use blood as a way to carry oxygen from the lungs to organs or body tissue*

17. The troposphere's upper boundary differs depending on where you are flying.

a. True *
b. False

18. Pulmonary veins carry blood from the heart to the organs and tissues.

a. True
b. False *

19. The body can't tell the difference between acceleration forces due to gravity and those due to aircraft maneuvers.

a. True *
b. False

20. Fighter pilots and astronauts wear the G-suit, a piece of clothing that protects pilots from the effects of altitude sickness.

a. True
b. False *