

Anatomy & Physiology 2nd Semester Final Review

Skeleton

1. Can you identify the bones of the skeleton? (pg 147)
2. Can you explain how long bones grow? (epiphyseal plates)
3. Can you identify the following parts of bone tissue?
 - Osteoblasts – form new bones by hardening the protein collagen with minerals
 - Osteocytes – maintain bone by exchanging nutrients and wastes between blood and bone tissue
 - Osteoclasts – destroy bone and release minerals back into the blood
4. Can you explain the difference between compact bone and spongy bone?
5. Can you explain the difference between the appendicular skeleton and the axial skeleton?
6. Can you explain the difference between osteoarthritis and rheumatoid arthritis?
7. Can you describe (in general) the steps during a total knee replacement surgery?

Muscles (pg 187-194)

8. Can you identify the components of a sarcomere (basic component of myofibril)– the muscle cell fibers at the cellular level? (actin, myosin, Z line, I band, H band, A band)
9. Can you explain how the proteins actin and myosin interact to make muscle contract?

Nervous System

10. Can you describe the general structure of the nervous system? (brain, spinal cord, nerves – what they are composed of [gray matter, white matter, nerve tracks], how they are related)
11. Can you describe and/or identify the structure of a neuron?
12. Can you briefly describe the transmission of a nerve impulse? (depolarization)
13. Can you briefly describe the transmission at a synapse?
14. Can you define a neurotransmitter?
15. Can you describe how addiction interferes with the reward system of the brain? (the VTA, amygdalae, nucleus accumbens and prefrontal cortex)
16. Can you describe how specific drugs can interfere with neural transmission? (cocaine, heroin, nicotine, alcohol, methamphetamine)
17. Can you explain a stroke?
18. Can you explain why the story of Phineas Gage was important to neuroscience?

Sleep

19. Can you explain the five stages of sleep?
20. Can you explain the relationship between dreams and NREM and REM sleep?
21. Can you explain the current theory relating sleep & long term memory?

Autopsy

22. Can you identify the basic steps taken during an autopsy?

- i. Gross external examination
- ii. Y-incision
- iii. removal of ribs
- iv. running the bowel
- v. Rokitansky method of removing thoracic/abdominal organs (organ block)
- vi. removal of brain (transverse cut)
- vii. bread loaf method of examining organs
- viii. histology & toxicology followup

Circulatory System

23. Can you identify the following on a diagram of the heart? (pg 392 & 394)

- a. right atrium
 - b. left atrium
 - c. right ventricle
 - d. left ventricle
 - e. aorta
 - f. superior vena cava
 - g. inferior vena cava
 - h. pulmonary trunk artery
 - i. pulmonary veins
 - j. right atrioventricular valve (right av valve, tricuspid valve)
 - k. pulmonary semilunar valve
 - l. left atrioventricular valve (left av valve, bicuspid valve)
 - m. interventricular septum
25. Can you identify on a diagram of the heart where the following cells are and explain how they work together to create the conducting system of the heart? (pg 399-401)
- a. Sinoatrial (SA) node
 - b. Atrioventricular (AV) node
 - c. AV bundle (bundle of His)
 - d. Purkinje fibers
26. Can you identify the following three parts of an electrocardiogram (EKG) and explain what is happening to the heart at each stage? (pg 401-403)
- a. P wave
 - b. QRS complex
 - c. T wave
27. Can you define cardiac arrhythmia and explain why they may be a problem?
28. Can you explain the diagram on pg 390 (overview of cardiovascular system)
29. Can you explain what the following diseases are:
- a. myocardial infarction
 - b. atherosclerosis
30. Can you describe the general steps in a heart bypass operation?
(angiogram, retrieving bypass vein, exposing the heart, circumventing blood flow, creating a bypass, reestablishing blood flow, finishing up)