

BY 124 SI – Mock Exam III

1. Mammalian herbivores such as horses:
 - a. Are bulk feeders.
 - b. Eat mostly mineral substances.
 - c. Eat autotrophs.
 - d. A & C only.
 - e. All of the above.

2. Enzymatic hydrolysis is:
 - a. The act of eating.
 - b. When food is broken down mechanically to increase its surface area for chemical digestion.
 - c. The enzymatic addition of water that results in chemical breakdown of macromolecules.
 - d. When small molecules are absorbed for use in the body.
 - e. None of the above.

3. Which of the following is a distinct advantage of extracellular digestion over intracellular digestion?
 - a. Greater surface area for absorption of digested nutrients.
 - b. Ability to ingest larger pieces of food and then digest it.
 - c. The use of digestive enzymes to hydrolyze polymers to monomers.
 - d. Ability to digest all four macromolecule types instead of just proteins.
 - e. All of the above.

4. An earthworm's digestive system consists of a:
 - a. Crop that stores and moistens food.
 - b. Muscular gizzard that pulverizes food.
 - c. Typhlosole that increases surface area for absorption.
 - d. A & C only.
 - e. All of the above.

5. The food you eat will pass through all of the following structures except the:
 - a. Pancreas
 - b. Stomach
 - c. Rectum
 - d. Oral cavity
 - e. Duodenum

6. Chief cells:
 - a. Are located in the stomach.
 - b. Secrete pepsin, a protein-digesting enzyme.
 - c. Are important to chemical digestion.
 - d. A & C only.
 - e. All of the above.

7. OMIT

8. Which of the following substances will aid in the digestion of fatty foods?
 - a. Bile salts.
 - b. Proteases.
 - c. Lipases.
 - d. A & C only.
 - e. All of the above.

9. The pancreatic enzymes are:
 - a. Initially activated by kinases.
 - b. Secreted into the duodenum in their active form.
 - c. Activated by the presence of trypsin.
 - d. A & C only.

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- e. All of the above.
10. Bile is:
- a. Made in the pancreas.
 - b. Stored in the liver.
 - c. An enzyme important to fat digestion.
 - d. All of the above.
 - e. None of the above.
11. Why does salivary amylase not hydrolyze starch in the duodenum?
- a. The acidic pH of the stomach denatures salivary amylase, and pepsin begins hydrolyzing it.
 - b. Starch is completely hydrolyzed into maltose in the oral cavity.
 - c. Salivary amylase is produced by salivary glands and never leaves the oral cavity.
 - d. Salivary amylase can hydrolyze glycogen but not starch.
 - e. None of the above.
12. After a meal of greasy French fries, which enzymes would you expect to be most active?
- a. Lipase, lactase, maltase.
 - b. Gastric juice, bile, bicarbonate.
 - c. Sucrose, lipase, bile.
 - d. Salivary & pancreatic amylase, disaccharidases, lipase
 - e. Pepsin, trypsin, chymotrypsin.
13. The hepatic portal vein:
- a. Carries absorbed nutrients to the liver for processing.
 - b. Supplies oxygenated blood to the liver.
 - c. Drains the lacteals of the villi.
 - d. A & C only.
 - e. All of the above.
14. In the brush border of the small intestine, enzymatic hydrolysis occurs on all macromolecules except:
- a. Carbohydrates.
 - b. Proteins.
 - c. Fats.
 - d. Nucleic acids.
 - e. A & C only.
15. OMIT
16. OMIT
17. In countercurrent exchange:
- a. Double circulation keeps oxygenated and deoxygenated blood separate.
 - b. The flow of fluids in opposite directions maintains a favorable diffusion gradient along the entire length of the exchange surface.
 - c. The capillaries of the lung pick up more oxygen than do tissue capillaries.
 - d. ATP powers the transport of oxygen against the concentration gradient.
 - e. None of the above.
18. Surfactants are most closely related to:
- a. Gas exchange.
 - b. Blood flow.
 - c. Enzymatic hydrolysis.
 - d. Immunity.
 - e. Elimination of cellulose.
19. The volume of air inhaled and exhaled during normal breathing is called:

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- a. Vital capacity.
 - b. Tidal volume.
 - c. Vital capacity.
 - d. Normal volume.
 - e. None of the above.
20. Which of the following is involved in speeding up breathing?
- a. Nervous and chemical signals.
 - b. Medulla breathing center impulses.
 - c. A drop in the pH of cerebrospinal fluid.
 - d. Severe deficiencies of oxygen.
 - e. All of the above.
21. Which of the following are similarities between open and closed circulatory systems?
- a. Pumping device that helps to move blood through the body.
 - b. Blood and interstitial fluid are separate from each other.
 - c. Some blood circulation is due to body movements.
 - d. A & C only.
 - e. All of the above.
22. A semilunar valve will prevent the backflow of blood from:
- a. The aorta into the left ventricle.
 - b. The right ventricle into the right atrium.
 - c. The pulmonary vein into the right ventricle.
 - d. A & C only.
 - e. All of the above.
23. During the ventricular systole step of the adult human cardiac cycle:
- a. Blood flows into the heart from the vena cava and pulmonary veins.
 - b. The ventricles are relaxed and allow blood to enter from the atria.
 - c. The ventricles contract and pump blood out of the heart.
 - d. The remaining blood in the atria is forced into the ventricles.
 - e. None of the above.
24. The sinoatrial (SA) node of the heart:
- a. Sets the rate and timing by which all cardiac muscles contract.
 - b. Is located between the left and right atria.
 - c. Causes the heart rate to decrease in the presence of epinephrine.
 - d. A & C only.
 - e. All of the above.
25. In an EKG, the T-wave represents:
- a. Excitation & contraction of the ventricles.
 - b. Excitation & contraction of the atria.
 - c. Recovery of the ventricles.
 - d. Recovery of the atria.
 - e. None of the above.
26. In fetal circulation, the ductus venosus:
- a. Is located between the left and right atria.
 - b. Allows blood to bypass the lungs.
 - c. Is closed due to the cutting of the umbilical cord after birth.
 - d. A & C only.
 - e. All of the above.
27. Blood flows more slowly in the arterioles than in the arteries because the arterioles:
- a. Have thoroughfare channels that are often closed off.

- b. Collectively have a larger cross-sectional area than do the arteries.
 - c. Must provide gas exchange opportunity with the interstitial fluid.
 - d. Have a larger internal diameter than do the arteries.
 - e. All of the above.
28. Fluid moves out of the capillaries at the arterial end of a capillary bed as a result of:
- a. Blood pressure exceeds osmotic pressure.
 - b. Osmotic pressure exceeds blood pressure.
 - c. Active transport with the help of ATP.
 - d. The squeezing of muscles on the interstitial fluid.
 - e. None of the above.
29. Platelets:
- a. Are found in the blood plasma and function in pH buffering.
 - b. Are found in the blood plasma and function in regulating blood viscosity.
 - c. Are cellular elements of blood and function in oxygen transport.
 - d. Are cellular elements of blood and function in defense and immunity.
 - e. None of the above.
30. Which of the following are components of the blood plasma and function in pH buffering?
- a. Plasma proteins.
 - b. Platelets.
 - c. Electrolytes.
 - d. A & C only.
 - e. All of the above.
31. Breathing rate will increase when _____ carbon dioxide level in your blood causes a _____ in pH.
- a. Increase; drop
 - b. Increase; rise
 - c. Decrease; drop
 - d. Decrease; rise
 - e. All of the above.
32. High acidity in blood acts as a _____ to hemoglobin, resulting in hemoglobin's lower affinity for oxygen at lower blood pH.
- a. Positive allosteric modulator.
 - b. Negative allosteric modulator.
 - c. Transcription factor.
 - d. Dominant promoter.
 - e. None of the above.
33. Which of the following is picked up and released by hemoglobin during carbon dioxide transport on an RBC?
- a. Carbonic anhydrase.
 - b. Carbonic acid.
 - c. Bicarbonate.
 - d. A & C only.
 - e. None of the above.
34. Which heart chamber has the thickest muscle layer?
- a. Right atrium.
 - b. Left atrium.
 - c. Right ventricle.
 - d. Left ventricle.
 - e. They all have the same thickness.

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35. As a general rule, blood leaving the right ventricle of a mammal's heart will pass through how many capillary beds before it returns to the right ventricle?
- Zero.
 - One.
 - Two.
 - Three.
 - Four.
36. Type AB blood:
- Has A antigen on its RBC's.
 - Has B antigen on its RBC's.
 - Has no antibodies in its plasma.
 - Is known as the "universal recipient" blood type.
 - All of the above.
37. The direct result of histamine is:
- Vasodilation.
 - Fever.
 - Edema.
 - Redness.
 - All of the above.
38. Which of the following is incorrectly paired with its effect?
- Gastric juice – kills bacteria in the stomach.
 - Vaccination – creates passive immunity.
 - Fever – stimulates phagocytosis.
 - Lysozyme – attacks bacterial cell walls.
 - All of the above are correctly paired.
39. Interferon would be released by:
- A mast cell that has bound an antigen.
 - A helper T cell bound to an APC.
 - A cell infected by a virus.
 - A macrophage.
 - All of the above.
40. Antibodies are:
- Proteins that consist of two identical heavy chains and two identical light chains.
 - Proteins embedded in B-cell membranes.
 - Proteins circulating in the blood that tag foreign cells for destruction
 - A & C only.
 - All of the above.
41. Toll-like receptors:
- Are found on phagocytic white blood cells.
 - Recognize specific antigen on pathogens.
 - Trigger acquired immune response.
 - A & C only.
 - All of the above.
42. Which type of cell is responsible for causing apoptosis in cancer cells and virus-infected cells?
- Plasma cells.
 - Natural killer cells.
 - Dendritic cells.
 - Helper T cells.
 - Cytotoxic T cells.

43. An inflammatory response may be initiated by the:
- Increased blood flow to an infected area.
 - Accumulation of phagocytes in an injured area.
 - Release of chemicals such as histamine and prostaglandins by mast cells.
 - Release of interferon by infected cells.
 - All of the above.
44. What do macrophages and neutrophils have in common?
- They secrete lysozyme.
 - They attack virus-infected cells.
 - They phagocytize pathogens.
 - They stimulate antibody production.
 - All of the above.
45. Our immune system does not usually attack our own healthy tissues because such lymphocytes are:
- Converted into other cells of the immune system.
 - Destroyed or rendered nonfunctional.
 - Never produced.
 - A & C only.
 - All of the above.
46. Which of the following characteristics helps white blood cells carry out their defensive functions more effectively?
- Release of cytokines.
 - Release of clotting factors.
 - Restriction of their movements to regions that have lymphatic tissue.
 - A & C only.
 - All of the above.
47. B-lymphocytes:
- Engulf and destroy bacteria and viruses.
 - Attack cells that have been infected by viruses.
 - Stimulate other lymphocytes.
 - Produce cytokines.
 - Multiply and make antibodies that circulate in blood and lymph.
48. An immune response is initiated by the presence of:
- Antibody.
 - Antigen.
 - Pathogen.
 - Histamine.
 - All of the above.
49. Major histocompatibility complex molecules:
- Are a collection of cell surface proteins.
 - Are able to help distinguish self from non-self.
 - Present antigen fragments on infected cells.
 - A & C only.
 - All of the above.
50. With organ transplants, the chance of graft rejection is decreased when the donor and recipient _____ match as closely as possible.
- Antibodies.
 - Blood type.
 - MHC proteins.
 - Leukocytes.
 - All of the above.

51. What do the antibodies do to attack their targets?
- Attach to antigens and block their activity.
 - Clump cells together so that phagocytes can ingest them.
 - Activate complement to form a pore in the membrane of the targets.
 - Cross-link soluble antigen molecules, forming immobile aggregates.
 - All of the above.
52. The IgG class of immunoglobins:
- Can cross the placenta and provide passive immunity to the fetus.
 - Is the first type of antibody present during the primary immune response.
 - Is present in secretions and breast milk.
 - Triggers mast cells and basophils to release histamine.
 - Is found on the surface of mature B-cells.
53. What is the role of dendritic cells in the primary immune response?
- Secrete cytokines to activate cytotoxic T cells.
 - Present antigen to helper T cells via class II MHC molecules.
 - Discharge destructive enzymes that damage larger parasitic invaders.
 - Take in foreign molecules by receptor-mediated endocytosis and present the specific antigen fragments to helper T cells.
 - All of the above.
54. Which of the following is required for B-cell activation to occur in T-dependent humoral immunity?
- B-cell receptors.
 - Class I MHC molecules.
 - Helper T-cell receptors.
 - A & C only.
 - All of the above.
55. Granzymes are released by _____, and they function to _____.
- Memory B-cells; stimulate secondary immune response.
 - Plasma cells; stimulate the release of antibodies into the blood plasma.
 - Helper T-cells; initiate apoptosis from within the infected target cell.
 - Cytotoxic T-cells; cause cell lysis by poking holes in the infected cell's plasma membrane.
 - None of the above.
56. Memory Cells
57. All of the above