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. Ghrelin is the hormone that:
    a. Is secreted by the stomach and triggers hunger.
    b. Stimulates secretion of gastric juice.
    c. Stimulates the release of bile and pancreatic enzymes, and also inhibits peristalsis.
    d. Stimulates the secretion of bicarbonate ions from the pancreas
    e. None of the above.

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.
    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. Ruminants:
    a. Use microorganisms to digest cellulose.
    b. Are bulk feeders.
    c. Have extracellular digestion.
    d. A & C only.
    e. All of the above.

16. Amphibians such as frogs have a respiratory system that includes:
    a. Gills.
    b. Tracheoles.
    c. Operculum.
    d. Positive pressure ventilation.
    e. None of the above.

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:
    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.

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?
    a. Zero.
    b. One.
    c. Two.
    d. Three.
    e. Four.

36. Type AB blood:
    a. Has A antigen on its RBC's.
    b. Has B antigen on its RBC's.
    c. Has no antibodies in its plasma.
    d. Is known as the "universal recipient" blood type.
    e. All of the above.

37. The direct result of histamine is:
    a. Vasodilation.
    b. Fever.
    c. Edema.
    d. Redness.
    e. All of the above.

38. Which of the following is incorrectly paired with its effect?
    a. Gastric juice – kills bacteria in the stomach.
    b. Vaccination – creates passive immunity.
    c. Fever – stimulates phagocytosis.
    d. Lysozyme – attacks bacterial cell walls.
    e. All of the above are correctly paired.

39. Interferon would be released by:
    a. A mast cell that has bound an antigen.
    b. A helper T cell bound to an APC.
    c. A cell infected by a virus.
    d. A macrophage.
    e. All of the above.

40. Antibodies are:
    a. Proteins that consist of two identical heavy chains and two identical light chains.
    b. Proteins embedded in B-cell membranes.
    c. Proteins circulating in the blood that tag foreign cells for destruction
    d. A & C only.
    e. All of the above.

41. Toll-like receptors:
    a. Are found on phagocytic white blood cells.
    b. Recognize specific antigen on pathogens.
    c. Trigger acquired immune response.
    d. A & C only.
    e. All of the above.

42. Which type of cell is responsible for causing apoptosis in cancer cells and virus-infected cells?
    a. Plasma cells.
    b. Natural killer cells.
    c. Dendritic cells.
    d. Helper T cells.
    e. Cytotoxic T cells.

43. An inflammatory response may be initiated by the:
    a. Increased blood flow to an infected area.
    b. Accumulation of phagocytes in an injured area.
    c. Release of chemicals such as histamine and prostaglandins by mast cells.
    d. Release of interferon by infected cells.
    e. All of the above.

44. What do macrophages and neutrophils have in common?
    a. They secrete lysozyme.
    b. They attack virus-infected cells.
    c. They phagocytize pathogens.
    d. They stimulate antibody production.
    e. All of the above.

45. Our immune system does not usually attack our own healthy tissues because such lymphocytes are:
    a. Converted into other cells of the immune system.
    b. Destroyed or rendered nonfunctional.
    c. Never produced.
    d. A & C only.
    e. All of the above.

46. Which of the following characteristics helps white blood cells carry out their defensive functions more effectively?
    a. Release of cytokines.
    b. Release of clotting factors.
    c. Restriction of their movements to regions that have lymphatic tissue.
    d. A & C only.
    e. All of the above.

47. B-lymphocytes:
    a. Engulf and destroy bacteria and viruses.
    b. Attack cells that have been infected by viruses.
    c. Stimulate other lymphocytes.
    d. Produce cytokines.
    e. Multiply and make antibodies that circulate in blood and lymph.

48. An immune response is initiated by the presence of:
    a. Antibody.
    b. Antigen.
    c. Pathogen.
    d. Histamine.
    e. All of the above.

49. Major histocompatibility complex molecules:
    a. Are a collection of cell surface proteins.
    b. Are able to help distinguish self from non-self.
    c. Present antigen fragments on infected cells.
    d. A & C only.
    e. 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.
    a. Antibodies.
    b. Blood type.
    c. MHC proteins.
    d. Leukocytes.
    e. All of the above.

51. What do the antibodies do to attack their targets?
    a. Attach to antigens and block their activity.
    b. Clump cells together so that phagocytes can ingest them.
    c. Activate complement to form a pore in the membrane of the targets.
    d. Cross-link soluble antigen molecules, forming immobile aggregates.
    e. All of the above.

52. The IgG class of immunoglobins:
    a. Can cross the placenta and provide passive immunity to the fetus.
    b. Is the first type of antibody present during the primary immune response.
    c. Is present in secretions and breast milk.
    d. Triggers mast cells and basophils to release histamine.
    e. Is found on the surface of mature B-cells.

53. What is the role of dendritic cells in the primary immune response?
    a. Secrete cytokines to activate cytotoxic T cells.
    b. Present antigen to helper T cells via class II MHC molecules.
    c. Discharge destructive enzymes that damage larger parasitic invaders.
    d. Take in foreign molecules by receptor-mediated endocytosis and present the specific antigen fragments to helper T cells.
    e. All of the above.

54. Which of the following is required for B-cell activation to occur in T-dependent humoral immunity?
    a. B-cell receptors.
    b. Class I MHC molecules.
    c. Helper T-cell receptors.
    d. A & C only.
    e. All of the above.

55. Granzymes are released by _____, and they function to _____.
    a. Memory B-cells; stimulate secondary immune response.
    b. Plasma cells; stimulate the release of antibodies into the blood plasma.
    c. Helper T-cells; initiate apoptosis from within the infected target cell.
    d. Cytotoxic T-cells; cause cell lysis by poking holes in the infected cell's plasma membrane.
    e. None of the above.