

Anatomy and physiology



**ASSIGN
BUSTER**

Exam Review, Units 1-4 1.

1. The smallest structures that biologists consider being alive are

- A. organisms.
- B. organs.
- C. macromolecules.
- D. cells.
- E. organelles.

Review levels of the organization.

2. Cells contain smaller structures called ___ that carry out their metabolic functions. Review the structure of the cell and know the functions of each of the organelles.

3. Many physiological processes are controlled by self-correcting ___ loops.

4. ___ is the body's tendency to maintain stable internal conditions. Make sure you review homeostasis, positive feedback loops, and negative feedback loops. All chemical change in the body is collectively called ___. Look at the chemistry worksheet. Know the terms listed in the worksheet and their definitions.

6. Anabolism occurs when complex molecules are made from simpler ones.

True False

7. Two groups of people were tested to determine whether garlic lowers blood cholesterol levels. One group was given 800 mg of garlic powder daily for four months and exhibited an average 12% reduction in the blood cholesterol. The other group was not given any garlic and after four months

averaged a 3% reduction in cholesterol. The group that was not given the garlic was the

- A. control group.
- B. test group.
- C. placebo group.
- D. peer group.
- E. double-blind group.

Review the scientific method.

8. Any chemical that speeds up a reaction but is not consumed by it is called a/an ___ or ____.

9. Fats are digested by enzymes called

- A. lipases.
- B. proteases.
- C. glycolysis.
- D. carboxylases.
- E. sterolases.

Review the action of enzymes, method of naming enzymes, and the structure of a protein.

10. A positively charged ion is known as a(n) _____.

11. The chemical symbol for potassium is _____.

12. Consider sodium, which has an atomic number of 11 and an atomic mass of 23. How many outer or valence electrons does it have?

- A. 1

- B. 2
- C. 8
- D. 11
- E. 23

13. The sharing of electrons in their outer orbital describes what type of chemical bond? Know how ionic, covalent, and hydrogen bonds are made.

14. What is the fate of oil droplets in the water? Why?

- A. It will dissolve in the water because oil is hydrophilic.
- B. It will stay as separate oil drops because oil is hydrophilic.
- C. It will become more hydrophilic and partially dissolve in water.
- D. It will merge together to form one large oil drop because oil is hydrophobic.
- E. It will merge together to form one large oil drop because oil is hydrophilic.

Review the structure of the phospholipid bilayer.

15. The polysaccharide that is stored in humans in the liver and muscle is called _____ and is made up of the monomer or monosaccharide called _____.

- A. cellulose; glucose
- B. starch; glucose
- C. lactose; glucose + galactose
- D. glycogen; glucose
- E. sucrose; glucose + fructose

Review the structure of carbohydrates, lipids (phospholipids), proteins, and nucleic acids.

16. Where are most of the ATP made within the cell? In the

- A. cytoplasm.
- B. mitochondria.
- C. lysosomes.
- D. vacuoles.
- E. Golgi apparatus.

Review the function of the organelles within the cell.

17. The plasma membrane is said to be ___ because it allows some substances to pass through but excludes others. Know the make-up of the plasma membrane.

18. The plasma membrane is composed mainly of protein and ___ molecules.

19. Channel proteins that can open or close their pores in response to changes in voltage across the plasma membrane are called ___.

20. Programmed cell death is carried out by a process called apoptosis. True
False

21. Cells of the small intestine and kidney tubule have a "brush border" composed of ___, which are cell extensions that increase surface area.

22. What function would immediately cease if the ribosomes of a cell were destroyed?

- A. exocytosis
- B. active transport

- C. ciliary beating
- D. protein synthesis
- E. osmosis

Review the function of the various organelles in the cell.

23. The phase of mitosis in which the chromosomes line up in the center of the cell is called _____. Review the cell cycle including the interphase, mitosis, and cytokinesis.

24. Two solutions are separated by a selectively permeable membrane. Solution A has a higher concentration of an impermeable solute compared to the solution. Which of the following do you expect would happen?

- A. solute will move from solution A to solution B
- B. solute will move from solution B to solution A
- C. water will move from solution A to solution B
- D. water will move from solution B to solution A
- E. no movement of solute or water will occur

25. A red blood cell is placed in a 5% salt solution. This solution would be described as _____ and will cause the cell to _____. Review osmosis, diffusion, facilitated diffusion, and active transport processes. Know the concentration of normal saline (0.9%).

26. If a DNA molecule has 12% thymine, how much guanine will it have?

- A. 6%
- B. 12%
- C. 24%
- D. 38%

- E. 76%

Review the structure of DNA and RNA.

27. You were able to radioactively tag an amino acid that is used to make insulin, a hormone that will be exported out of the cell. The pathway of the tagged amino acid would be

- A. free ribosome; cytosol; vesicle; extracellular fluid.
- B. rough ER; Golgi complex; Golgi vesicle; extracellular fluid.
- C. rough ER; smooth ER; Golgi complex; Golgi vesicle; extracellular fluid.
- D. smooth ER; Golgi complex; Golgi vesicle; extracellular fluid. E. smooth ER; Golgi complex; lysosome; extracellular fluid. Review secretion.

28. In anatomical terms, referring to the front and back, the pectoral region is what to the scapular region? 29. Which term can be used to describe the serous membrane that lines a cavity?

30. The elbow is what to the wrist? Review the directional terms, planes of sectioning, and abdominal areas.

31. After a cartilage cell becomes trapped in a lacuna, it is called a chondrocyte. True False Review the function of each of the following cells: chondroblast, chondrocyte, osteoblast, osteocyte, osteoclast. Name the four types of tissues. Review the functions of the various tissues. There will be a few pictures of some tissues on the final. They will be fairly recognizable.

32. A tissue specialized for energy storage and thermal insulation is.

33. ___ are single mucus-secreting cells found in the epithelia of many mucous membranes.

- A. Mast cells
- B. Goblet cells
- C. Endocrine cells
- D. Myocytes
- E. Histiocytes

34. A ___ is a relatively impenetrable attachment between two epithelial cells.

- A. plasma membrane
- B. desmosome
- C. tight junction
- D. gap junction

Review the types of intracellular junctions found between cells.

35. Tendons and ligaments are made predominantly of the protein

- A. keratin.
- B. fibrin.
- C. actin.
- D. collagen.
- E. elastin.

Review the structure of tendons, ligaments, and aponeurosis. Know what each does.

36. A tissue containing ~20 layers of flat cells is called

- A. simple squamous.
- B. simple cuboidal.
- C. simple columnar.
- D. pseudostratified columnar.
- E. stratified squamous.

37. The area of the neuron which houses the nucleus is called the _____, while the long single extension that sends electrical signals to other cells is called the _____.

- A. neuroglia; axon
- B. soma; axon
- C. soma; dendrite
- D. dendrite; axon
- E. soma; nerve

Review the neuronal structure.

38. The electrical charge difference across plasma membranes of all cells is called the

- A. resting membrane potential.
- B. depolarization phase.
- C. action potential.
- D. repolarization phase.
- E. hyperpolarization phase. Review an action potential and resting membrane potential.

39. You decided to become buff and started seriously lifting weights. After six months you began to notice that some of your muscles increased in size. This increase in size was due to ____ of the muscle cells.

- A. hyperplasia
- B. neoplasia
- C. hypertrophy
- D. metaplasia.
- E. atrophy

Review the definitions of the terms in the choices above.

40. The holocrine glands of the skin secrete _____. Review the sheet on glands and glandular structure.

Review mucous and serous membranes.

41. Thick skin is found

- A. on the lips.
- B. on the bottom of the foot.
- C. between the shoulders.
- D. on the abdomen.
- E. on the buttocks.

42. Areolar tissue is found in

- A. the stratum corneum.
- B. the stratum lucidum.
- C. the stratum spinosum.
- D. the papillary layer.

- E. the reticular layer.

43. The fastest rate of mitosis is seen in

- A. the stratum corneum.
- B. the stratum lucidum.
- C. the stratum granulosum.
- D. the stratum spinosum.
- E. the stratum basale.

Know the order of the layers in the epidermis and dermis. Know the types of tissues found in the epidermis, dermis, and hypodermis.

44. A tendon connects a muscle to a bone, whereas a ___ connects one bone to another.

45. Cells called ___ deposit matrix at the surface of a bone.

46. Hematopoiesis typically occurs in

- A. the epiphyseal plate.
- B. the articular cartilages.
- C. the red bone marrow.
- D. the yellow bone marrow.
- E. the gelatinous bone marrow.

47. Calcium homeostasis in adults is maintained mainly by

- A. calcitonin.
- B. calcitriol.
- C. vitamin D.
- D. parathyroid hormone.

- E. hydroxyapatite.

Review the action of calcitonin, vit. D, and parathyroid hormones and their effects on bones.

48. Most bones develop from

- A. hyaline cartilage.
- B. osseous tissue.
- C. bone marrow.
- D. endoderm.
- E. fibrocartilage

Know the difference between intramembranous and endochondral ossification.

49. Bones found in the forearm are

- A. flat bones.
- B. sesamoid bones.
- C. spongy bones.
- D. long bones.
- E. irregular bones.

Review the structure of a long bone and the microscopic structure of bone.

50. The periosteum is a connective tissue sheath which lines the ____ of bones and fuses with bones by way of ____ fibers.

- A. outer surface; elastic
- B. inner surface; reticular
- C. outer surface; perforating

- D. inner surface; perforating
- E. outer surface; actin

51. The ilium, ischium, and pubis make up a bone called ____.

52. The part of the ethmoid bone which allows nerve fibers for the sense of smell to pass directly into the brain is called the ____?

53. Which movement is limited to the foot?

- A. pronation
- B. elevation
- C. dorsiflexion
- D. abduction
- E. circumduction

Review the movements and recognize a description of a movement.

54. This part of a synovial joint appears at the ends of the long bones.

- A. articular cartilage
- B. fibrous capsule
- C. synovial membrane
- D. meniscus
- E. bursa Review the parts of the synovial joint.

55. The elbow is an example of what type of joint?

- A. hinge
- B. saddle
- C. gliding
- D. condyloid

- E. ball and socket

56. The fibrocartilage discs of the knees are called the ____ and the ligaments which prevent hyperextension and prevent the femur from sliding off the front of the tibia are the ____ ligaments.

- A. menisci; popliteal
- B. collateral ligaments; cruciate
- C. menisci; cruciate
- D. menisci; collateral
- E. bursae; collateral Review the microscopic structure of cartilage.

Know the three types of cartilage and recognize which is the strongest.

57. The rotator cuff includes tendons of all of the following muscles except

- A. the subscapularis.
- B. the biceps brachii.
- C. the infraspinatus.
- D. the teres minor.
- E. the supraspinatus.

Know the rotator cuff muscles.

58. ____ are straplike muscles of uniform width whose fascicles all run in the same direction.

- A. Convergent muscles
- B. Pennate muscles
- C. Rectilinear muscles
- D. Fusiform muscles

- E. Parallel muscles

Review the organizations of muscles. Know the difference between an aponeurosis and a tendon.

59. In skeletal muscle, groups of muscle cells are called ____ and are surrounded by a connective tissue sheath called the _____.

- A. fascicles, endomysium
- B. fascicles, perimysium
- C. fasciae, epimysium
- D. fasciae, endomysium
- E. fascicles, epimysium

Know the terms endomysium, perimysium, and epimysium.

Review the related terms for nerve structure also.

60. The muscular dome between the abdominal and thoracic cavity is the

- A. central tendon.
- B. diaphragm.
- C. external intercostals.
- D. internal intercostals.
- E. transverse abdominis.

There will be a few questions like this one related to major muscles in the body.

61. One motor nerve fiber and all the muscle fibers innervated by it are called a ____.

62. A plasma membrane is said to be ___ if there is a difference in charge on opposite sides of it.

63. The ___ theory is the current model of how a muscle fiber contracts. Review the sliding filament theory of muscle movement including the structures found in a muscle cell.

64. Motor nerve fibers release a neurotransmitter called ___, which makes skeletal muscle fibers contract.

65. Which of the following is/are voluntary muscle?

- A. smooth muscle
- B. cardiac muscle
- C. skeletal muscle
- D. visceral muscle
- E. intestinal muscle

66. Action potentials are propagated from the surface to the interior of a muscle fiber by way of

- A. the sarcomeres.
- B. the sarcoplasmic reticulum.
- C. the endomysium.
- D. the myofibrils.
- E. the T tubules.

Review the structure of a muscle fiber.

67. When there is not enough oxygen to create ATP by aerobic respiration, a muscle fiber can produce ATP by borrowing phosphate groups from

- A. cyclic adenosine monophosphate.
- B. creatine phosphate.
- C. phospholipids.
- D. cholinesterase.
- E. creatine kinase.

Review cellular respiration, fermentation, and the phosphagen system for the production of ATP.

68. Posture is maintained mainly by ___ fibers because they fatigue _____.

- A. slow-twitch; slowly
- B. white; slowly
- C. type II; rapidly
- D. fast-twitch; rapidly
- E. fast glycolytic; slowly

Review the difference between slow and fast-twitch muscles. Review the structure of the neuromuscular junction.

69. Which of the following is an organ system?

- a. connective
- b. circulatory
- c. hypogastric
- d. epidermal

Review the organ systems.

70. Which of the following processes does not occur in cellular respiration?

- a. glycolysis

- b. transition reaction
- c. fermentation
- d. Krebs cycle e
- . electron transport chain

Review the processes in cellular respiration and fermentation.

Answers

1. D 2. organelles 3. negative feedback 4. homeostasis 5. metabolism 6. true
7. A 8. analysts, enzymes 9. A 10. cation 11. K 12. A 13. covalent 14. D 15.
D 16. B 17. selectively permeable 18. phospholipid 19. voltage-gated
channels 20. true 21. microvilli 22. D 23. metaphase 24. D 25. hypertonic,
shrink 26. D 27. B 28. anterior 29. parietal 30. proximal 31. true 32. adipose
33. B 34. C 35. D 36. E 37. B 38. A 39. C 40. sebum 41. B 42. D 43. E 44.
ligament 45. osteoblasts. 46. C 47. D 48. A 49. D 50. C 51. coxal 52.
cribriform plate 53. C 54. A 55. A 56. C 57. B 58. E 59. B 60. B 61. motor unit
62. polarized 63. sliding filament 64. acetylcholine 65. C 66. E 67. B 68. A 69.
B 70. C