

# Medical Anatomy and Physiology

## Medical Anatomy and Physiology

### Benchmark #1

#### Skill Certification – SAMPLE TEST

**MULTIPLE CHOICE:** Read each question carefully. Identify the best answer to each question. Mark the letter of the correct answer on your answer sheet.

1. What is an infectious disease characterized by tonic muscle spasm, exaggerated reflexes, and lockjaw caused by the exotoxins of certain bacteria? (8.13)
  - A. rubella
  - B. tetanus
  - C. epilepsy
  - D. measles
2. In which abdominopelvic quadrant is the liver located? (1.09)
  - A. left upper quadrant
  - B. left lower quadrant
  - C. right upper quadrant
  - D. right lower quadrant
3. What may form when excessive amounts of water are absorbed from the bile fusing cholesterol crystals? (10.13)
  - A. cirrhosis
  - B. appendicitis
  - C. gallstones
  - D. tumors
4. What is the inorganic compound necessary for circulation? (2.09)
  - A. water
  - B. carbon dioxide
  - C. oxygen
  - D. glucose
5. What is the primary stimulus for respiration? (9.09)
  - A. low oxygen concentration in the blood
  - B. high carbon dioxide concentration in the blood
  - C. increased temperature of the blood
  - D. low carbon dioxide concentration in the blood

6. Where would you find the cortex, medulla, and renal pelvis? (11.03)
  - A. ureter
  - B. bladder
  - C. urethra
  - D. kidney
  
7. What organelle is a network of tubes in the cell used for intracellular transport? (3.07)
  - A. vacuole
  - B. lysosomes
  - C. mitochondria
  - D. endoplasmic reticulum
  
8. All of the following substances can freely cross the plasma membrane EXCEPT (3.03)
  - A. water
  - B. albumin
  - C. sodium
  - D. potassium
  
9. Where is cerebrospinal fluid normally found? (6.09)
  - A. eustachian tubes, blood, epidural space
  - B. ventricles of the brain, subarchnoid space, chorois plexus
  - C. subarachnoid space, ventricles of the brain, eustachian tubes
  - D. choroid plexus, spinal cord, ventricles of the heart
  
10. What disease is characterized by chronic degeneration of nervous tissue in the brain leading to memory loss and dementia? (6.14)
  - A. Alzheimer's disease
  - B. cerebral palsy
  - C. Parkinson's disease
  - D. bacterial meningitis
  
11. What is an osteoclast? (4.02)
  - A. cells responsible for bone production
  - B. mature bone cells
  - C. cells that break down bone tissue
  - D. cells that stimulate ossification
  
12. Which of the following structures is an accessory organ? (10.03)
  - A. stomach
  - B. small intestine
  - C. liver
  - D. esophagus

13. What is the dome shaped portion of the stomach used to temporarily store food? (10.07)
- A. rugae
  - B. fundus
  - C. pylorus
  - D. cardiac region
14. What accessory digestive organ lies posterior to the stomach and releases digestive enzymes into the duodenum? (10.09)
- A. spleen
  - B. liver
  - C. pancreas
  - D. gall bladder
15. A stationary clot is called a(n) \_\_\_\_\_, and a traveling clot or any foreign debris is called a(n) \_\_\_\_\_. (8.05)
- A. embolus, thrombus
  - B. plasmin, plasminogen
  - C. thrombus, embolus
  - D. anticoagulant, coagulant
16. What are the two PRIMARY divisions of the nervous system? (6.02)
- A. somatic/autonomic nervous systems
  - B. central/peripheral nervous systems
  - C. sympathetic/parasympathetic nervous systems
  - D. motor/integrative nervous systems
17. Which of the following terms means an opening or hole through a bone serving as a passageway for nerves or blood vessels? (4.05)
- A. meatus
  - B. sinus
  - C. trochanter
  - D. foramen
18. What is an element that has more electrons than protons, such as Cl<sup>-</sup>. (2.04)
- A. anion
  - B. cation
  - C. isotope
  - D. quark
19. The spleen, tonsils, thymus, and bone marrow are all components of what system? (8.08)
- A. skeletal
  - B. endocrine
  - C. lymphatic
  - D. integumentary

20. How are neutrophils and lymphocytes classified? (8.03)
- A. platelet
  - B. red blood cells
  - C. white blood cells
  - D. plasma cells
21. What are thin, flat cells that can be stacked on each other? (3.09)
- A. squamous
  - B. cuboidal
  - C. columnar
  - D. pseudostatified
22. Where are nutrients broken down to produce ATP during the process of aerobic cellular respiration? (3.07)
- A. mitochondria
  - B. ribosome
  - C. golgi complex
  - D. lysosome
23. What thyroid gland hormone helps regulate metabolism? (7.03)
- A. growth hormone
  - B. cortisol
  - C. thyroxine
  - D. epinephrine
24. Which of the following pairs of bones form the pectoral girdle? (4.07)
- A. humerus and ulna
  - B. ilium and ischium
  - C. ilium and pubis
  - D. scapula and clavicle
25. What is the function of the medullary cavity? (4.03)
- A. stores red marrow
  - B. allows muscle attachment
  - C. stores yellow marrow
  - D. produces blood cells
26. Which lung has two lobes? (9.05)
- A. right
  - B. left
  - C. both
  - D. neither

27. What is the number one killer of infants between the ages of one week and 12 months whose pathogenic mechanisms are not known? (9.10)
- A. pneumonia
  - B. influenza
  - C. tuberculosis
  - D. SIDS
28. What anatomical plane divides the body into equal right and left halves? (1.07)
- A. midsagittal
  - B. frontal
  - C. sagittal
  - D. transverse
29. What is the muscle that causes a desired action? (5.08)
- A. prime mover
  - B. antagonist
  - C. synergist
  - D. fixator
30. What cartilage covers the opening through the larynx? (9.04)
- A. hyoid
  - B. thyroid
  - C. epiglottis
  - D. cricoid
31. Which of the following is NOT a function of the cell membrane? (3.02)
- A. is a physical barrier that encloses the cellular contents
  - B. is a selectively permeable membrane
  - C. is a source of energy
  - D. is a receptor site for hormones
32. What funnel shaped distal end of the uterine tubes receives the ovum from the ovaries? (12.07)
- A. ampulla
  - B. fundus
  - C. infundibulum
  - D. isthmus
33. Which of the following is not a mechanism of moving lymph through the lymphatic system? (8.09)
- A. skeletal muscle pump action
  - B. pressure gradients between the extracellular fluid and lymphatic fluid
  - C. peristaltic action of the lymphatic vessels
  - D. muscle pump action due to contraction and relaxation of the respiratory muscles

34. Which of the following classifications of joints permits little or no movement? (4.10)
- A. fibrous
  - B. synovial
  - C. diarthrotic
  - D. Cartilagenous
35. What color is myelinated tissue? (6.05)
- A. gray
  - B. white
  - C. black
  - D. red
36. In what tightly coiled tubes in the testes does spermatogenesis occurs? (12.03)
- A. epididymis
  - B. vas deferens
  - C. seminiferous tubules
  - D. ejaculatory ducts
37. What is a response in which a stimulus initiates actions that reverse or reduce the original stimulus? (1.11)
- A. reverse feedback mechanism
  - B. positive feedback mechanism
  - C. negative feedback mechanism
  - D. proactive feedback mechanism
38. What is the number of times the heart beats per minute? (8.22)
- A. stroke volume
  - B. systole
  - C. cardiac output
  - D. heart rate
39. What vessels of the vascular system are responsible for the exchange of gases and nutrients between the blood and body cells? (8.23)
- A. veins
  - B. arteries
  - C. aorta
  - D. capillaries
40. What characteristic of muscle tissue allows muscle to be elongated or stretched? (5.02)
- A. Elasticity
  - B. Extensibility
  - C. Contractility
  - D. Excitability

41. How would a person living in a moderate climate probably lose the greatest amount of water from his/her body? (11.07)
- A. sweating
  - B. respiration
  - C. urine
  - D. feces
42. What is a congenital condition in which a child is born with deformed or missing vertebral laminae and the spinal cord may protrude or be exposed outside of the vertebral canal? (4.12)
- A. scoliosis
  - B. spina bifida
  - C. osteoarthritis
  - D. osteoporosis
43. Arrange the following events associated with the union of an egg and sperm and the subsequent development of the embryo in the proper sequence: (12.12)
- A. implantation - cleavage - fertilization - placental development
  - B. placental development - cleavage - fertilization - implantation
  - C. fertilization - implantation - cleavage - placental development
  - D. fertilization - cleavage - implantation - placental development
44. What structure conveys nerve impulses from central nervous system to muscles or glands? (5.06 & 6.04)
- A. motor unit
  - B. motor end plate
  - C. motor neuron
  - D. neuroglial cells
45. Through what vessels does blood enter the glomerulus? (11.04)
- A. afferent arteriole
  - B. efferent arteriole
  - C. pretubular capillaries
  - D. arcuate artery
46. What are the three principle parts of a neuron? (6.03)
- A. axon, dendrite and neuroglia
  - B. axon, dendrite and cell body
  - C. dendrite, cell body and neuroglia
  - D. cell body, neuroglia and axon

47. Soreness and pain of the front lower leg due to excessive straining is defined as what disorder? (5.10)
- A. fibromyalgia
  - B. muscular dystrophy
  - C. muscle strain
  - D. shin splints
48. What is a gland that secretes hormones directly into the blood? (3.10)
- A. endocrine gland
  - B. exocrine gland
  - C. sudoriferous gland
  - D. sebaceous gland
49. Which of the following meninges has threadlike extensions and attach it to the innermost membrane? (6.09)
- A. pia mater
  - B. arachnoid mater
  - C. dura mater
  - D. subarachnoid mater
50. What type of bond is formed when ions share electrons such as carbon bond? (2.05)
- A. ionic
  - B. covalent
  - C. valence
  - D. hydrogen
51. When a muscle fiber contracts, it shortens. What actually shortens? (5.05)
- A. actin
  - B. myosin
  - C. sarcomere
  - D. A-bands
52. Which of the following terms identifies the inferior pumping chambers of the heart? (8.16)
- A. vena cava
  - B. atria
  - C. ventricles
  - D. coronary sinuses
53. Which of the following is NOT a function of the respiratory system? (9.01)
- A. provides a mechanism for gas exchange between the body and the external environment
  - B. plays a role in maintenance of optimal pH in the blood
  - C. plays a role in the regulation of neurotransmitters in the body
  - D. contains receptor sites for the sensation of olfaction



54. Which of the following are formed elements of the blood? (8.01)
- A. plasma, erythrocytes, leukocytes
  - B. erythrocytes, leukocytes, thrombocytes
  - C. leukocytes, thrombocytes, plasma
  - D. thrombocytes, plasma, erythrocytes
55. Osmosis is (3.05)
- A. movement of a substance across a membrane from high to low concentration
  - B. movement of water across a membrane from low to high concentration
  - C. movement across a membrane from low to high concentration
  - D. movement of water across a membrane from high to low concentration
56. What type of T-cell is responsible for direct contact with infected cells and antigens? (8.11)
- A. killer (cytotoxic)
  - B. memory
  - C. helper
  - D. suppressor
57. What lobe of the cerebrum is associated with sight? (6.12)
- A. temporal lobe
  - B. parietal lobe
  - C. frontal lobe
  - D. occipital lobe
58. Which of the following represent the correct sequence of structures through which blood moves from the vena cava to the lungs? (8.19)
- A. right atrium, pulmonary semilunar valve, right ventricle, tricuspid valve
  - B. right atrium, tricuspid valve, right ventricle, pulmonary semilunar valve
  - C. tricuspid valve, right atrium, pulmonary semilunar valve, right ventricle
  - D. pulmonary semilunar valve, right atrium, tricuspid valve, right ventricle
59. Which muscle is a member of the quadriceps? (5.09)
- A. vastus medialis
  - B. gastrocnemius
  - C. latissimus dorsi
  - D. gluteus maximus
60. Which part of the brain is the largest part of the brain and is divided into paired halves? (6.08)
- A. cerebellum
  - B. diencephalon
  - C. cerebrum
  - D. brain stem

61. What organelle is the site of protein synthesis? (3.07)
- A. vacuole
  - B. golgi apparatus
  - C. ribosomes
  - D. endoplasmic reticulum
62. The protein that the thick myofilaments are composed of is called \_\_\_\_\_ whereas, the protein that makes up the thin myofilaments is called \_\_\_\_\_. (5.04)
- A. myosin, guanine
  - B. guanine, thymine
  - C. actin, myosin
  - D. myosin, actin
63. What section of the brain is associated with muscle control in maintaining balance and coordination of basic movements? (6.13)
- A. brainstem
  - B. diencephalon
  - C. cerebellum
  - D. thalamus
64. What is the inability of the body to regulate blood sugar levels usually caused by decreased or lack of insulin production and secretion? (7.04)
- A. dwarfism
  - B. diabetes insipidus
  - C. diabetes mellitus
  - D. myxedema
65. Which of the following structures is not a part of the brainstem? (6.10)
- A. medulla oblongata
  - B. pons
  - C. thalamus
  - D. midbrain
66. Which of the following are all components of the urinary system? (11.02)
- A. urethra, urinary bladder, ureters, kidneys
  - B. gallbladder, renal pelvis, renal artery, renal vein
  - C. ureter, gall bladder, liver, spleen
  - D. adrenal gland, capillaries, kidneys, ureters, peritubular
67. What portion of the outer ear is responsible for directing sound waves to the tympanic membrane? (6.16)
- A. auricle
  - B. eustachian tube
  - C. auditory ossicles
  - D. oval window

68. Which of the following lists describe functions of the skeletal system? (4.01)
- A. protection, hematopoiesis, collagen formation, mineral storage
  - B. hematopoiesis, support, protection, mineral storage
  - C. temperature regulation, movement, temperature regulation, antibody regulation
  - D. mineral storage, posture, hormone production, collagen formation
69. How many viable egg cells are produced during the process of meiosis? (12.11)
- A. one
  - B. four
  - C. eight
  - D. sixteen
70. What is a condition of elevated pressure in the eye due to the obstruction of the flow of aqueous humor? (6.17)
- A. strabismus
  - B. conjunctivitis
  - C. glaucoma
  - D. cataracts
71. What is the pacemaker of the heart? (8.20)
- A. AV node
  - B. SA node
  - C. Purkinje fibers
  - D. Bundle of His (AV bundle)
72. Hemoglobin is contained within which type of blood cell? (8.02)
- A. leukocytes
  - B. thrombocytes
  - C. erythrocytes
  - D. platelets
73. Which of the following processes are involved in urine formation? (11.05)
- A. secretion, filtration, reabsorption
  - B. thermoregulation, secretion, filtration
  - C. filtration, erythropoiesis, mastication
  - D. reabsorption, mastication, peristalsis
74. After ovulation, what happens to the ruptured follicle? (12.09)
- A. disappears
  - B. passes on as waste
  - C. mends itself and becomes another egg
  - D. develops into a corpus luteum

75. What group of vertebrae bears the majority of weight when standing in an upright position? (4.09)
- A. thoracic vertebrae
  - B. cervical vertebrae
  - C. sacral vertebrae
  - D. lumbar vertebrae
76. What space, filled with vitreous humor, is found posterior to the lens? (6.15)
- A. anterior cavity
  - B. anterior chamber
  - C. posterior chamber
  - D. posterior cavity
77. What is the first stage of hemostasis? (8.04)
- A. coagulation
  - B. platelet plug formation
  - C. production of plasma
  - D. vascular spasm
78. How are the bones of the wrists and ankles classified? (4.04)
- A. long bones
  - B. flat bones
  - C. short bones
  - D. irregular bones
79. What is a gland in the dermis or subcutaneous layer that produces perspiration? (3.14)
- A. sebaceous gland
  - B. exocrine gland
  - C. endocrine gland
  - D. sudoriferous gland
80. How is a solution with a pH of 5.0 classified? (2.07)
- A. acidic
  - B. basic
  - C. alkaline
  - D. neutral
81. What is the most basic conduction pathway through the nervous system, consisting of a sensory neuron, an integrating center in the central nervous system, a motor neuron, and a reception effector? (6.07)
- A. stretch reflex
  - B. reflex arc
  - C. action potential
  - D. reciprocal innervation

82. Which of the following types of anemia is characterized by the inability of the of the red bone marrow to produce erythrocytes which have been destroyed due to toxic chemicals and anti-cancer drugs? (08.07)
- A. Hemolytic Anemia
  - B. Hemorrhagic Anemia
  - C. Aplastic Anemia
  - D. Iron-deficiency Anemia
83. What type of blood contains both anti-A and anti-B antibodies? (8.06)
- A. Type A
  - B. Type B
  - C. Type AB
  - D. Type O
84. Immunity to the chicken pox is gained through which process? (8.12)
- A. Naturally Acquired Active Immunity
  - B. Naturally Acquired Passive Immunity
  - C. Artificially Acquired Active Immunity
  - D. Artificially Acquired Passive Immunity
85. Which of the following blood disorders is characterized by the overproduction of immature white blood cells, which are released prematurely into the circulation? (08.07)
- A. Hemophilia
  - B. Polycythemia
  - C. Mononucleosis
  - D. Leukemia
86. Which of the following exhibits the correct order of structural organization from smallest to largest? (1.04)
- A. chemical, tissue, cell, organ, organ system, organism,
  - B. organ, cell, tissue, chemical, organ system, organism
  - C. cell, chemical, tissue, organ, organ system, organism
  - D. chemical, cell, tissue, organ, organ system, organism
87. Which of the following terms means to use energy to synthesize or manufacture new tissue or molecules? (1.05)
- A. metabolism
  - B. homeostasis
  - C. catabolism
  - D. anabolism
88. Which body cavity is the small intestine found in? (1.08)
- A. pericardial
  - B. pelvic
  - C. abdominal
  - D. mediastinum

89. Which of the following elements are not among the most common in living organisms? (2.02)
- A. carbon
  - B. sodium
  - C. oxygen
  - D. nitrogen
90. Water is important to the body for which of the following reasons EXCEPT: (2.09)
- A. water is a solvent for many materials
  - B. water resists change in temperature
  - C. water acts as a buffer to resist changes in pH.
  - D. water helps to transport substances within the body
91. Which of the following is an energy molecule essential to life? (2.12)
- A. DNA
  - B. ATP
  - C. cAMP
  - D. RNA
92. Diffusion is (3.05)
- A. movement of water molecules from an area of high concentration to low concentration
  - B. movement of substances from an area of low concentration to high concentration
  - C. engulfing of solid particles
  - D. movement of substances from an area of high concentration to low concentration
93. Which of the following structures are the site of gas exchange in the lungs? (09.06)
- A. bronchi
  - B. alveoli
  - C. bronchioles
  - D. trachea
94. Salivary Amylase functions to break down what type of molecule? (10.04)
- A. Carbohydrate
  - B. Fat
  - C. Protein
  - D. Lipid

95. The excessive urination of water due to a lack of the ADH is known attributed to what disorder? (11.08)
- A. Glomerulonephritis
  - B. Cystitis
  - C. Renal Failure
  - D. Diabetes Insipidus
96. The female reproductive organ responsible for producing eggs and hormones is the \_\_\_\_\_. (12.05)
- A. uterine tubes
  - B. vagina
  - C. ovary
  - D. uterus
97. The valves of the heart are considered part of what layer of the heart? (08.18)
- A. Epicardium
  - B. Pericardium
  - C. Endocardium
  - D. Myocardium
98. Which of the following sequences correctly describes the passageway for oxygen as it enters the respiratory system from the external environment? (09.02)
- A. nose, larynx, pharynx, trachea, bronchioles, bronchi, alveoli
  - B. nose, trachea, larynx, pharynx, bronchi, bronchioles, alveoli
  - C. nose, trachea, bronchi, bronchioles, larynx, pharynx, alveoli
  - D. nose, pharynx, larynx, trachea, bronchi, bronchioles, alveoli
99. The nerves and blood vessels are located in which part of the tooth? (10.05)
- A. pulp cavity
  - B. neck
  - C. crown
  - D. root
100. All of the following are normal constituents of urine EXCEPT: (11.06)
- A. glucose
  - B. creatine
  - C. uric acid
  - D. ketone bodies

