

Massage Therapist

- ✓ 100 A & P Questions, Answers & Rationales
- ✓ Detailed Explanation Of The Question Writing Process
- ✓ Insider Tips On How To Pass Your Exam On The First Try

Anatomy & Physiology



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Question 1: The muscle spindles are proprioceptive nerve receptors or minute sensory organs located in the:

- a. Muscle belly
- b. Tendons
- c. Joints
- d. Capillaries

Question 2: In a muscle contraction, what is it called when the muscle shortens in length?

- a. Eccentric
- b. Isometric
- c. Isotonic
- d. Elasticity

Question 3: The hamstring muscles from lateral to medial are?

- a. Biceps femoris, semitendinosus, and semimembranosus
- b. Biceps femoris, semimembranosus, and semitendinosus
- c. Semimembranosus, semitendinosus, and biceps femoris
- d. Semitendinosus, semimembranosus, and biceps femoris

Question 4: The autonomic nervous system controls?

- a. Involuntary functions
- b. Breathing
- c. Heart rate
- d. All of the above

Question 5: If the body is in Homeostasis, it means that the?

- a. Organ systems will eventually fail
- b. Systems of the body are working too hard to sustain life
- c. Body is in a state of equilibrium
- d. Seizure is over

Question 6: What two muscles ADduct the scapula?

- a. Latissimus dorsi and rhomboids
- b. Rhomboids and trapezius (middle fibers)
- c. Rhomboids and latissimus dorsi
- d. Latissimus dorsi and Trapezius

Question 7: The muscle that performs opposite actions of the prime mover is an:

- a. Synergist
- b. Agonist
- c. Aggressor
- d. Antagonist

Question 8: Of the following choices, which is the fluid that resides in the spaces between the body's cells?

- a. Interstitial fluid
- b. Intravascular fluid
- c. Intracellotic fluid
- d. Intracellular

Question 9: Which of the following branches of the autonomic nervous system is responsible for slowing the heart?

- a. Sympathetic
- b. Parasympathetic
- c. Central
- d. Peripheral

Question 10: _____ is the study of the structure of organisms?

- a. Anatomy
- b. Physiology
- c. Pathophysiology
- d. None of the above

Question 11: Fatty acids and proteins are secreted in an odorless, milky, or yellowish color through:

- a. Sebaceous glands
- b. Sudoriferous glands
- c. Sweat glands
- d. Apocrine glands

Question 12: Which nerve is the longest nerve in the entire body?

- a. Femoral nerve
- b. Sciatic nerve
- c. Obturator nerve
- d. Superior gluteal nerve

Question 13: Which muscle group is located between the SCM and anterior flap of the Trapezius and unilaterally rotates the head and neck to the opposite side?

- a. Splenius Capitis
- b. Subclavius
- c. Scalenes
- d. Longissimus Capitis

Question 14: Rotation of the head occurs because of this type of joint between the axis and atlas of the cervical vertebrae?

- a. Hinge
- b. Ellipsoid
- c. Saddle
- d. Pivot

Question 15: As a person inhales, the diaphragm will?

- a. Expand and create a negative pressure drawing air into the lungs
- b. Expand and create a positive pressure drawing air into the lungs
- c. Contract and create a negative pressure drawing air into the lungs
- d. Contract and create a positive pressure drawing air into the lungs

Question 16: What 2 bones form the pelvic girdle?

- a. Os coxae
- b. Pubic symphysis/Sacrum
- c. Sacrum/femur
- d. Ilium/ischium

Question 17: An overall lengthening of the muscle while it is contracting or resisting a workload is defined as a _____ contraction?

- a. Efferent
- b. Isometric
- c. Eccentric
- d. Concentric

Question 18: What is the term for the fibrocartilage that is between the vertebrae?

- a. Vertebral disk
- b. Intervertebral disk
- c. Articular cartilages
- d. All of the above

Question 19: Which muscle is responsible for head, neck, and shoulder movements?

- a. Sternocleidomastoid
- b. Levator scapulae
- c. Scalenes
- d. Trapezius

Question 20: A person who is lying prone would be?

- a. On the ventral surface of their body
- b. On the dorsal surface of their body
- c. On their side with knees drawn up
- d. None of the above

Question 21: Which of the following is smaller than an organism?

- a. Tissue
- b. Organ
- c. Cell
- d. All of the above

Question 22: What muscle extends the arm?

- a. Coracobrachialis
- b. Subclavius
- c. Subscapularis
- d. Teres major

Question 23: The _____ is the insertion for three of the four rotator cuff muscles; supraspinatus, infraspinatus, and teres minor?

- a. Intertubercular groove
- b. Lesser tubercle
- c. Greater tubercle
- d. Deltoid tuberosity

Question 24: What fuses the skull together?

- a. Muscles
- b. Connective tissue
- c. Bone
- d. Fibrocartilage

Question 25: What are the four traits of muscle tissue?

- a. Elasticity, contractibility, irritability, and autonomic
- b. Elasticity, extensibility, irritability, and atrophy
- c. Contractibility, extensibility, elasticity, and autonomic
- d. Contractility, extensibility, elasticity, and irritability

Question 26: Which of the following types of tissue would be described as forming a frame for the body that is both fibrous and elastic?

- a. Muscle Tissue
- b. Connective tissue
- c. Nervous Tissue
- d. Adipose Tissue

Question 27: What is the name of the cartilaginous joint that connects the pubic bones?

- a. Sacrum
- b. Pubic symphysis
- c. Sacroiliac joint
- d. Pubic tubercle

Question 28: _____ is the study of the functions of an organism?

- a. Pathophysiology
- b. Physiology
- c. Anatomy
- d. None of the above

Question 29: These two muscles cross both the glenohumeral and humeroulnar joints?

- a. Biceps brachii and triceps brachii
- b. Brachialis and triceps brachii
- c. Brachialis and biceps brachii
- d. Biceps brachii and coracobrachialis

Question 30: Where is the first place in the heart to receive unoxygenated blood?

- a. Pulmonary vein
- b. Right atrium
- c. Left atrium
- d. Pulmonary artery

Question 31: Where would you find the foramen magnum?

- a. Directly above the diaphragm
- b. At the base of the skull
- c. Just below the elbow
- d. In the foramen magnum

Question 32: The _____ ligament is composed of several ligaments that originate at the medial malleolus. It is designed to protect against medial stress of the talocrural joint?

- a. Spring
- b. Deltoid
- c. Long plantar
- d. Lateral talocalcaneal

Question 33: The axial skeleton is comprised of?

- a. Arms, legs, scapula, clavicle and pelvic girdle
- b. The cranium and vertebral column
- c. The cranium, vertebral column, ribs, sternum, and hyoid bone
- d. Pectoral and pelvic girdles

Question 34: Most long nerve fibers are covered with a whitish, fatty material that is called:

- a. Nissel
- b. Dendrites
- c. Myelin
- d. Synapse

Question 35: Which ribs are termed the floating ribs?

- a. 8-12
- b. 11 & 12
- c. 10-12
- d. 9-12

Question 36: Which is the strongest bone in the body?

- a. Humerus
- b. Femur
- c. Os coxae
- d. Tibia

Question 37: What does the Eustachian tube do?

- a. Connects the uterus to uvula
- b. Connects the ovary to the uterus
- c. Connects the pancreas to bile duct
- d. Connects the middle ear with the nasal cavity

Question 38: If a client has a subluxation, you would refer them to a:

- a. Nutritionist
- b. Chiropractor
- c. Acupuncturist
- d. Podiatrist

Question 39: What are the 3 types of muscles in the human body?

- a. Nerve, epithelial, and skeletal
- b. Skeletal, cardiac, and smooth
- c. Long, short, and cardiac
- d. Visceral, skeletal, and epithelial

Question 40: _____ muscle is not under our conscious control and is termed involuntary?

- a. Striated
- b. Skeletal
- c. Smooth
- d. None of the above

Question 41: A bony landmark on the scapula that lies deep to the teres minor and deltoid muscles, and is the origin for the long head of the triceps brachii is called the?

- a. Olecranon process
- b. Infraglenoid tubercle
- c. Supraspinous fossa
- d. Acromion

Question 42: How many pairs of nerves branch off of the spine?

- a. 31
- b. 36
- c. 32
- d. 26

Question 43: As a reaction to the presence of foreign particles, the body's immune system may create?

- a. Antagonists
- b. Antigens
- c. Antibodies
- d. Antagonons

Question 44: Which is an attachment point on the os coxae for the rectus femoris?

- a. Ischial tuberosity
- b. Anterior inferior iliac spine
- c. Anterior superior iliac spine
- d. Superior Ramus

Question 45: How many curvatures are there in the spine?

- a. 3
- b. 5
- c. 4
- d. 2

Question 46: In anatomical position, which bone of the forearm is lateral?

- a. Radius
- b. Ulna
- c. Humerus
- d. Tibia

Question 47: Where can you find the temporal bone?

- a. Elbow
- b. Temporinimum
- c. Skull
- d. Hand

Question 48: All of the following muscles share the same attachment site:

- a. Pectoralis minor, Biceps brachii, and Brachialis
- b. Biceps brachii, Coracobrachialis, and Pectoralis minor
- c. Brachialis, Coracobrachialis, and Biceps brachii
- d. Coracobrachialis, Pectoralis minor, and Brachialis

Question 49: The two joints which create inversion and eversion are:

- a. Proximal radioulnar and distal radioulnar
- b. Metacarpophalangeal and Talocalcaneal
- c. Talocrural and talocalcaneal
- d. Talocalcaneal (subtalar) and talocalcaneonavicular

Question 50: How many vertebrae are in the thoracic section of the spine?

- a. 5
- b. 8
- c. 10
- d. 12

Question 51: Which of the following choices are part of the endocrine system?

- a. Pancreas, thyroid, and bile
- b. Thyroid, pharynx, and adrenal
- c. Adrenal, gonads, and thyroid
- d. Gonads, pharynx, and larynx

Question 52: Calcium is the electrolyte that is responsible for?

- a. Acid based regulation
- b. Normal cardiac function
- c. Maintaining fluid balance in the body
- d. Temperature regulation

Question 53: What is the anatomical word for collar bone?

- a. Calcaneus
- b. Sternum
- c. Scapula
- d. Clavicle

Question 54: Fibrous, Cartilaginous, and Synovial are all classifications of which of the following?

- a. Joints
- b. Connective Tissue
- c. Cartilage
- d. Bones

Question 55: _____ is also known as the master gland?

- a. The thyroid gland
- b. The pituitary gland
- c. The parathyroid gland
- d. The adrenal glands

Question 56: Which of the following lobes is responsible for personality traits and higher-level thinking?

- a. Frontal
- b. Parietal
- c. Occipital
- d. Temporal

Question 57: The fetus grows in the mother's?

- a. Cervix
- b. Uterus
- c. Vagina
- d. Placenta

Question 58: The linea aspera is on the _____ aspect of the femur?

- a. Posterior
- b. Anterior
- c. Lateral
- d. Ipsilateral

Question 59: Of the following choices, which is not a type of blood cell?

- a. Red
- b. White
- c. Platelet
- d. Plasma

Question 60: Which of the following returns blood to the heart?

- a. Arteries
- b. Veins
- c. Capillaries
- d. Right atrium

Question 61: Which muscle is also commonly called the "boxer's muscle"?

- a. Serratus anterior
- b. Trapezius
- c. Triceps Brachii
- d. Biceps brachii

Question 62: What action is used to assess scapulohumeral rhythm at the scapula or scapulothoracic joint?

- a. Downward rotation
- b. Upward rotation
- c. ADduction
- d. ABduction

Question 63: What is the main portion or the shaft of the bone called?

- a. Compact bone
- b. Bone marrow
- c. Medullary cavity
- d. Diaphysis

Question 64: The connective tissue within the medullary cavity is called?

- a. Spongy bone
- b. Bone marrow
- c. Periosteum
- d. Endosteum

Question 65: Which muscle has its origin at the aponeurotic fibers of the iliolumbar ligament and the iliac crest?

- a. Gracilis
- b. Sartorius
- c. Quadratus lumborum
- d. Psoas major

Question 66: Tendons are a fibrous tissue that connect:

- a. Muscle to bone
- b. Bone to bone
- c. Muscle to muscle
- d. None of the above

Question 67: The _____ is a strong plantarflexor and crosses both the knee and the ankle joints?

- a. Tibialis anterior
- b. Fibularis (peroneus) longus
- c. Soleus
- d. Gastrocnemius

Question 68: What bone in the body does not articulate with other bones?

- a. Choroid
- b. Hyoid
- c. Patella
- d. The floating ribs

Question 69: What two muscles are complete synergists and part of the rotator cuff muscles?

- a. Infraspinatus and teres minor
- b. Infraspinatus and teres major
- c. Teres minor and supraspinatus
- d. Supraspinatus and subscapularis

Question 70: What type of joint movement would you use to describe the act of bringing a limb in towards the midline of the body?

- a. ABduction
- b. ADduction
- c. Flexion
- d. Extension

Question 71: The body's basic source of energy is?

- a. Insulin
- b. Sucrose
- c. Fructose
- d. Glucose

Question 72: An example of a long bone would be?

- a. The sternum
- b. The humerus
- c. A rib
- d. Cranium

Question 73: How many Kilocalories does each gram of fat produce?

- a. Nine
- b. Two
- c. Four
- d. Twenty

Question 74: What body system produces blood cells and stores minerals?

- a. Lymphatic
- b. Circulatory
- c. Skeletal
- d. Muscular

Question 75: The layer of muscles between the spinous processes of the thoracic vertebrae and the medial border of the scapula beginning from superficial to deep are:

- a. Rhomboids, erector spinae group, and trapezius
- b. Rhomboids, trapezius, and erector spinae group
- c. Trapezius, erector spinae group, and rhomboids
- d. Trapezius, rhomboids, and erector spinae group

Question 76: Which muscle has its insertion at a groove on the clavicle?

- a. Pectoralis major
- b. Pectoralis minor
- c. Sternocleidomastoid
- d. Subclavius

Question 77: Relative to its size, this muscle is the strongest muscle in the body, it can manage nearly one hundred-fifty pounds of pressure.

- a. Anterior Scalene
- b. Medial Pterygoid
- c. Teres Minor
- d. Masseter

Question 78: Which muscle of the leg is involved in the flexion of the thigh?

- a. Pectineus
- b. Iliopsoas
- c. Tensor fascia latae
- d. All of the above

Question 79: What is the term for the proximal end of the fibula?

- a. Head
- b. Lateral malleolus
- c. Medial malleolus
- d. Lateral epicondyle

Question 80: What regulates the body temperature and is known as the thermostat of the body?

- a. Skin
- b. Liver
- c. Hypothalamus
- d. Cerebral cortex

Question 81: The connective tissue that lines the joint cavities is the:

- a. Pleura
- b. Keratin
- c. Ligament
- d. Synovial membrane

Question 82: What is the term for the thin layer of tendon that connects the frontalis to the occipitalis?

- a. Levator palpebrae
- b. Buccinator
- c. Platysma
- d. Galea aponeurotica

Question 83: Which of the following is not part of the upper respiratory system?

- a. Larynx
- b. Vocal cords
- c. Mouth
- d. Trachea

Question 84: What four joints make up the shoulder complex?

- a. Glenohumeral, acromioclavicular, sternoclavicular, and costochondral
- b. Acromioclavicular, sternoclavicular, sternocostal, and costochondral
- c. Acromioclavicular, glenohumeral, sternoclavicular, and sternocostal
- d. Glenohumeral, acromioclavicular, sternoclavicular, and scapulothoracic

Question 85: The arterioles connect to?

- a. Neurons
- b. Veins
- c. Capillaries
- d. Venuoles

Question 86: A slightly movable joint is known as:

- a. Amphiarthrotic
- b. Diarthrotic
- c. Synarthrotic
- d. Synovial

Question 87: What muscle tendon attaches to the patellar ligament?

- a. Quadriceps femoris
- b. Biceps femoris
- c. Semitendinosus
- d. Semimembranosus

Question 88: During the digestive process food enters?

- a. The appendix first
- b. The large intestine first
- c. Through the trachea
- d. Through the pharynx

Question 89: Sebaceous glands are found in which layer of tissue?

- a. Subcutaneous
- b. Epidermis
- c. Dermis
- d. Pangaea

Question 90: The main function of the spring ligament is to support the head of which bone?

- a. Talus
- b. Fibula
- c. Tibia
- d. Humerus

Question 91: Which of the following is not typically a sympathetic response?

- a. Increased heart rate
- b. Nausea
- c. Elevated blood pressure
- d. Nervousness

Question 92: Which of the two lower leg bones is the largest?

- a. Ulna
- b. Fibula
- c. Femur
- d. Tibia

Question 93: In the upper-right quadrant we have what organs?

- a. Liver and gallbladder
- b. Spleen and stomach
- c. Liver and spleen
- d. Stomach and gall bladder

Question 94: Which of the following muscles attach to the IT band?

- a. Semitendinosus
- b. Tensor fascia latae
- c. Rectus femoris
- d. Semimembranosus

Question 95: The tibialis anterior and fibularis (peroneus) longus support the:

- a. Frontal arch
- b. Longitudinal arch
- c. Transverse arch
- d. Sagittal arch

Question 96: If you were talking about the integumentary system, you would be discussing?

- a. The kidneys, lungs, pancreas, and spleen
- b. The skin, nails, hair and sweat glands
- c. The path that oxygen takes to bond with hemoglobin
- d. The organs responsible for metabolism

Question 97: Which muscle ADducts the arm?

- a. Biceps brachii
- b. Latissimus dorsi
- c. Supraspinatus
- d. Rhomboid major

Question 98: Which plane divides the body into right and left equal halves?

- a. Frontal
- b. Sagittal
- c. Midsagittal
- d. Transverse

Question 99: Which muscle is a direct synergist to the teres minor?

- a. Latissimus dorsi
- b. Teres major
- c. Infraspinatus
- d. Deltoid

Question 100: What are considered the main supportive components of the nervous system?

- a. Fotons
- b. Neurons
- c. Protons
- d. Axons

Answers

Question 1: The muscle spindles are proprioceptive nerve receptors or minute sensory organs located in the:

a. Muscle belly

Rationale: Muscle spindles protect the muscle from being overstretched. They monitor muscle length and help control muscle movements by detecting the amount of stretch placed on a muscle.

Question 2: In a muscle contraction, what is it called when the muscle shortens in length?

c. Isotonic

Rationale: Isometric = Same tension no movement, Isotonic = Same tension with movement (drinking tonic = movement)

Question 3: The hamstring muscles from lateral to medial are?

a. Biceps femoris, semitendinosus, and semimembranosus

Rationale: The head of the fibula on the lateral side is the insertion for biceps femoris, the semitendinosus lies superficial to the wider and deeper semimembranosus.

Question 4: The autonomic nervous system controls?

d. All of the above

Rationale: The autonomic (involuntary) nervous system (ANS) has sympathetic and parasympathetic divisions that control glands, cardiac, and smooth muscle. The Somatic nervous system contains the central nervous system (CNS), peripheral nervous system (PNS), and effector organs.

Question 5: If the body is in Homeostasis, it means that the?

c. Body is in a state of equilibrium

Rationale: Homeostasis is used to describe the state of the body's equilibrium or stable internal environment.

Question 6: What two muscles ADduct the scapula?

b. Rhomboids and trapezius (middle fibers)

Rationale: ADduct or retraction= Trapezius (middle fibers) and Rhomboid major and minor.

Question 7: The muscle that performs opposite actions of the prime mover is an:

d. Antagonist

Rationale: Antagonist, a muscle that performs the opposite action of the prime mover and synergist muscles.

Question 8: Of the following choices, which is the fluid that resides in the spaces between the body's cells?

a. Interstitial fluid

Rationale: Interstitial fluid is in between the body's cells. Intracellular is in the cells and intravascular is in the veins and arteries.

Question 9: Which of the following branches of the autonomic nervous system is responsible for slowing the heart?

b. Parasympathetic

Rationale: The parasympathetic (rest and digest) is responsible for slowing the heart rate while the sympathetic (fight-or-flight) would do the opposite and speed it up.

Question 10: _____ is the study of the structure of organisms?

a. Anatomy

Rationale: Anatomy is the study of the structures of organisms.

Question 11: Fatty acids and proteins are secreted in an odorless, milky, or yellowish color through:

d. Apocrine glands

Rationale: Apocrine glands are largely confined to the axillary and genital areas of the body. Because of the fatty acids and proteins that are released, the secretion may have a milky or yellowish color. Bacteria lives on the skin and uses the proteins and fats as a source of nutrients allowing growth. That is when the secretions from the apocrine glands take on a musky unpleasant odor.

Question 12: Which nerve is the longest nerve in the entire body?

b. Sciatic nerve

Rationale: The sciatic nerve is the longest nerve in the entire body. It serves the skin of the leg, the muscles of the back, thigh, leg, and foot.

Question 13: Which muscle group is located between the SCM and anterior flap of the Trapezius and unilaterally rotates the head and neck to the opposite side?

c. Scalenes

Rationale: Scalenes are sandwiched in between SCM (Sternocleidomastoid) and Trapezius; Splenius Capitis is deep to the Trapezius and Rhomboids rotates the head and neck to the same side.

Question 14: Rotation of the head occurs because of this type of joint between the axis and atlas of the cervical vertebrae?

d. Pivot

Rationale: Atlantodontoid; Pivot= designed to allow one bone to rotate around the surface of another (C1=Atlas &

C2=Axis). Ellipsoid permits flexion / extension and AB or ADduction, for example the Radiocarpal (wrist) joint.

Question 15: As a person inhales, the diaphragm will?

c. Contract and create a negative pressure drawing air into the lungs

Rationale: Inhalation (inspiration) expands the chest laterally, elevating the rib cage and depressing/flattening the diaphragm, stretching the lungs and enlarging the thoracic volume, this creates negative pressure to draw air into the lungs. Exhalation (expiration) depresses the chest, reducing the lateral dimension of the rib cage and elevating the diaphragm into a dome, relaxing the stretch on the lungs to decrease the volume and raise pressure to draw air out of the lungs.

Question 16: What 2 bones form the pelvic girdle?

a. Os coxae

Rationale: The os coxae are the two bones in the pelvic girdle. The pelvis consists of 2 hip (coxal) bones, the sacrum and coccyx. The hip is three fused bones; ilium, ischium, and pubis.

Question 17: An overall lengthening of the muscle while it is contracting or resisting a workload is defined as a _____ contraction?

c. Eccentric

Rationale: Concentric brings the Insertion closer to the Origin, shortening the muscle. Isometric increases in tension without change in muscle length / (Eccentric = easing down toward the Earth).

Question 18: What is the term for the fibrocartilage that is between the vertebrae?

b. Intervertebral disk

Rationale: Intervertebral disk is the term for the fibrocartilage that is between the vertebrae. Their main function is shock absorption.

Question 19: Which muscle is responsible for head, neck, and shoulder movements?

d. Trapezius

Rationale: The trapezius is responsible for head, neck, and shoulder movements. It originates on the external occipital protuberance, medial superior nuchal line of the occiput, ligamentum nuchae & C-7 to C-12 spinous processes. The insertion is the lateral 1/3 of the clavicle, the acromion, & scapular spine.

Question 20: A person who is lying prone would be?

a. On the ventral surface of their body

Rationale: Prone means lying on their stomach or the ventral/anterior part of their body face down.

Question 21: Which of the following is smaller than an organism?

d. All of the above

Rationale: The organizational levels of the body are from smallest to largest; chemical, cellular, tissue, organ, organ system, and organismal.

Question 22: What muscle extends the arm?

d. Teres major

Rationale: The teres major muscle extends the arm. The teres major and latissimus dorsi are complete synergists. The actions: MAE Medial rotation, ADduction, and Extension of the glenohumeral joint.

Question 23: The _____ is the insertion for three of the four rotator cuff muscles; supraspinatus, infraspinatus, and teres minor?

c. Greater tubercle

Rationale: Lesser tubercle is the insertion of the fourth rotator cuff muscle, the subscapularis. All the other rotator muscles insert on the greater tubercle. The Intertubercular groove is between the greater and lesser tubercle and houses the long head tendon of the biceps brachii.

Question 24: What fuses the skull together?

d. Fibrocartilage

Rationale: Fibrocartilage fuses the skull together. The skull would be an example of a synarthrotic joint. SAD/ Synarthrosis= immovable. Amphiarthrosis= slightly movable. Diarthrosis= Freely movable.

Question 25: What are the four traits of muscle tissue?

d. Contractility, extensibility, elasticity, and irritability

Rationale: Contractility- muscle's ability to thicken or shorten. Extensibility- muscle's ability to be stretched. Elasticity- muscle's ability to return to original shape after being stretched. Excitability / irritability- muscle's ability to receive stimulus.

Question 26: Which of the following types of tissue would be described as forming a frame for the body that is both fibrous and elastic?

b. Connective tissue

Rationale: Connective tissue binds other types of tissues together. Forming a wonderfully flexible support system for organs and muscles. Some of the different types of specialized connective tissues are adipose (fat) tissue, blood, bone, and cartilage.

Question 27: What is the name of the cartilaginous joint that connects the pubic bones?

b. Pubic symphysis

Rationale: The pubic symphysis is the name of the cartilaginous slightly movable non-synovial joint that connects the pubic bones.

Question 28: _____ is the study of the functions of an organism?

b. Physiology

Rationale: Physiology is the study of the functions of organisms.

Question 29: These two muscles cross both the glenohumeral and humeroulnar joints?

a. Biceps brachii and triceps brachii

Rationale: Actions of flexion and extension for both the glenohumeral and humeroulnar joints are performed by the biceps brachii and the triceps brachii.

Question 30: Where is the first place in the heart to receive unoxygenated blood?

b. Right atrium

Rationale: The first place blood enters the heart is the right atrium.

Question 31: Where would you find the foramen magnum?

b. At the base of the skull

Rationale: The foramen magnum (Large hole) is an opening at the base of the occipital skull bone, where the spinal cord connects to the brain.

Question 32: The _____ ligament is composed of several ligaments that originate at the medial malleolus. It is designed to protect against medial stress of the talocrural joint?

b. Deltoid

Rationale: Deltoid ligament originates at the medial malleolus and spreads upward into an upside down triangle (deltoid). Spring stabilizes the head of the talus, preventing flat foot. Long plantar is on the plantar aspect of foot and lateral talocalcaneal is on the lateral side.

Question 33: The axial skeleton is comprised of?

c. The cranium, vertebral column, ribs, sternum, and hyoid bone

Rationale: The axial is the cranium, vertebral column, ribs, sternum and hyoid bone. The appendicular is all the bones in the extremities arms, legs, scapula, clavicle, and pelvic girdle.

Question 34: Most long nerve fibers are covered with a whitish, fatty material that is called:

c. Myelin

Rationale: Myelin has a waxy appearance that protects and insulates the fibers of the axon to increase the transmission rate of nerve impulses. Dendrites are part of the neuron that extend from the cell body to convey messages TOWARD the cell body.

Question 35: Which ribs are termed the floating ribs?

b. 11 & 12

Rationale: 11&12 are referred to as floating ribs or vertebral ribs with no anterior attachments.

Question 36: Which is the strongest bone in the body?

b. Femur

Rationale: The femur is the strongest bone in the body.

Question 37: What does the Eustachian tube do?

d. Connects the middle ear with the nasal cavity

Rationale: The Eustachian tube (auditory tube) connects the middle ear (tympanic cavity) with the nasal or nasopharynx cavity serving as a pressure equalizer.

Question 38: If a client has a subluxation, you would refer them to a:

b. Chiropractor

Rationale: A subluxation is a joint out of alignment and is referred to a Chiropractor. Podiatrist = foot, Nutritionist = Food / health, Acupuncturist = Needle work / Qi (Chi) alignment / Herbologist

Question 39: What are the 3 types of muscles in the human body?

b. Skeletal, cardiac, and smooth

Rationale: Skeletal, cardiac, and smooth. Skeletal is often referred to as striated and voluntary, where as smooth and cardiac; involuntary.

Question 40: _____ muscle is not under our conscious control and is termed involuntary?

c. Smooth

Rationale: Smooth muscle is involuntary and not under our conscious control.

Question 41: A bony landmark on the scapula that lies deep to the teres minor and deltoid muscles, and is the origin for the long head of the triceps brachii is called the?

b. Infraglenoid tubercle

Rationale: The infraglenoid tubercle is the origin of the triceps brachii long head. The Olecranon process is the insertion on the ulna.

Question 42: How many pairs of nerves branch off of the spine?

a. 31

Rationale: There are 31 pairs of nerves branching off of the spine. 8 cervical nerves, 12 thoracic nerves, 5 lumbar nerves, 5 sacral nerves, and 1 coccygeal nerve off the spinal cord.

Question 43: As a reaction to the presence of foreign particles, the body's immune system may create?

c. Antibodies

Rationale: As a reaction to antigens (toxins, bacteria, and foreign proteins), the body may activate the immune system to create antibodies or immunoglobulins (Igs).

Question 44: Which is an attachment point on the os coxae for the rectus femoris?

b. Anterior inferior iliac spine

Rationale: The anterior inferior iliac spine (AIIS) is an attachment point on the os coxae for the rectus femoris. It is deep to the inguinal ligament and sartorius muscle.

Question 45: How many curvatures are there in the spine?

c. 4

Rationale: There are 4 curvatures in the spine. Cervical, thoracic, lumbar, and sacral.

Question 46: In anatomical position, which bone of the forearm is lateral?

a. Radius

Rationale: In anatomical position the radius is the bone of the forearm that is lateral, the ulna is medial.

Question 47: Where can you find the temporal bone?

c. Skull

Rationale: It is located on the left and right sides of the skull connecting with the zygomatic bones.

Question 48: All of the following muscles share the same attachment site:

b. Biceps brachii, Coracobrachialis, and Pectoralis minor

Rationale: The coracoid process of the scapula is the origin of the short head on biceps brachii and the coracobrachialis. This structure also is the insertion for pectoralis minor.

Question 49: The two joints which create inversion and eversion are:

d. Talocalcaneal (subtalar) and talocalcaneonavicular

Rationale: The talocalcaneal and talocalcaneonavicular joints are modified gliding joints, they function in unison to produce pronation (eversion) and supination (inversion) of the foot.

Question 50: How many vertebrae are in the thoracic section of the spine?

d. 12

Rationale: There are 12 vertebrae in the thoracic spine (T1-T12).

Question 51: Which of the following choices are part of the endocrine system?

c. Adrenal, gonads, and thyroid

Rationale: The endocrine system glands; pineal, pituitary, thyroid, parathyroid, thymus, adrenal, pancreas, ovaries and testes. Pharynx and larynx are part of the respiratory system.

Question 52: Calcium is the electrolyte that is responsible for?

b. Normal cardiac function

Rationale: Calcium is required for cardiac function as well as bone growth, metabolism, muscle contractions, and blood clotting.

Question 53: What is the anatomical word for collar bone?

d. Clavicle

Rationale: Clavicle, part of the appendicular shoulder complex.

Question 54: Fibrous, Cartilaginous, and Synovial are all classifications of which of the following?

a. Joints

Rationale: Joints are where two or more bones meet. There are three types of joints, immovable (fibrous or synarthrosis), slightly movable (cartilaginous / amphiarthrosis) , and freely moving (synovial / diarthrosis) joints.

Question 55: _____ is also known as the master gland?

b. The pituitary gland

Rationale: The pituitary gland is known as the master gland because it manufactures and regulates the hormones that regulate all of the other glands.

Question 56: Which of the following lobes is responsible for personality traits and higher-level thinking?

a. Frontal

Rationale: Frontal is higher-level thinking and personality traits. Parietal is where most sensory info is processed with the exception of hearing, seeing, and smelling. Occipital is where vision is processed. Temporal is where hearing and memory are taken care of.

Question 57: The fetus grows in the mothers?

b. Uterus

Rationale: The fetus grows in the uterus. The cervix is the opening at the base of the uterus.

Question 58: The linea aspera is on the _____ aspect of the femur?

a. Posterior

Rationale: Vastus Medialis = medial lip of linea aspera. Vastus lateralis = lateral lip of linea aspera. Short head of biceps femoris = lateral lip of linea aspera. All attachment sights on the posterior aspect of the femur.

Question 59: Of the following choices, which is not a type of blood cell?

d. Plasma

Rationale: Plasma is the fluid portion of the blood, the others are all blood cell types.

Question 60: Which of the following returns blood to the heart?

b. Veins

Rationale: Veins carry unoxygenated blood back to the heart. Arteries carry oxygenated blood to the body. (Arteries= Away)

Question 61: Which muscle is also commonly called the "boxer's muscle"?

a. Serratus anterior

Rationale: The serratus anterior muscle is also commonly called the "boxer's muscle" because it ABducts and depresses the scapula making the punching motion possible at the shoulder girdle. It also holds the scapula against the rib cage and if the scapula is fixed it can act in forced inhalation.

Question 62: What action is used to assess scapulohumeral rhythm at the scapula or scapulothoracic joint?

d. ABduction

Rationale: Scapulothoracic rhythm is the ratio of motion between the scapulothoracic articulation and the glenohumeral joint, as the arm ABducts through full range. It tests for all joints of the shoulder.

Question 63: What is the main portion or the shaft of the bone called?

d. Diaphysis

Rationale: The Diaphysis is the main shaft or largest portion of the bone. It is composed of compact bone and contains (in adults) the yellow bone marrow. In infants it is the site for forming blood cells and red bone marrow.

Question 64: The connective tissue within the medullary cavity is called?

b. Bone marrow

Rationale: Bone marrow is the connective tissue in the medullary cavity of the bone.

Question 65: Which muscle has its origin at the aponeurotic fibers of the iliolumbar ligament and the iliac crest?

c. Quadratus lumborum

Rationale: The quadratus lumborum muscle has its origin at the aponeurotic fibers of the iliolumbar ligament and at the adjacent portions of the iliac crest.

Question 66: Tendons are a fibrous tissue that connect:

a. Muscle to bone

Rationale: Tendons are a thick fibrous tissue that connects muscle and bone. Ligaments are a fibrous tissue that connect bone to bone.

Question 67: The _____ is a strong plantarflexor and crosses both the knee and the ankle joints?

d. Gastrocnemius

Rationale: Gastrocnemius is in charge of flexing the knee and plantar flexion of the ankle. It originates on the posterior surfaces of the femur condyles, inserting on the calcaneus crossing two joints. Soleus does not cross both the knee and ankle joints.

Question 68: What bone in the body does not articulate with other bones?

b. Hyoid

Rationale: The hyoid is the only bone in the body that does not articulate with other bones. It is suspended by ligaments and tendons. It is supported by the muscles of the neck and in turn is the root of the tongue.

Question 69: What two muscles are complete synergists and part of the rotator cuff muscles?

a. Infraspinatus and teres minor

Rationale: Complete synergists, all the same actions at all the same joints. Infraspinatus and teres minor (HEALS) Horizontal ABduction, extension, ADduction, lateral rotation, and stabilize the head of humerus in the glenoid cavity.

Question 70: What type of joint movement would you use to describe the act of bringing a limb in towards the midline of the body?

b. ADduction

Rationale: ADduction can be described as the act of bringing the limb in towards the midline of the body. ADding to the midline. Moving on a frontal or coronal plane.

Question 71: The body's basic source of energy is?

d. Glucose

Rationale: Glucose is the basic source of energy that sugars are converted into for energy in the body.

Question 72: An example of a long bone would be?

b. The humerus

Rationale: The four bone shapes are long, short (cubed), flat, and irregular. The long bones are any bones in the body that are longer than they are wide. The tibia, fibula, humerus, femur, ulna, radius, clavicle, metacarpals, metatarsals, and the bones in each phalange are long bones. The ribs, cranium, and sternum are flat bones.

Question 73: How many Kilocalories does each gram of fat produce?

a. Nine

Rationale: Kilocalories or Calories are the measured units of energy provided by food.

Question 74: What body system produces blood cells and stores minerals?

c. Skeletal

Rationale: The Skeletal system allows the body to move, produces blood cells, stores minerals, supports and protects all other body systems.

Question 75: The layer of muscles between the spinous processes of the thoracic vertebrae and the medial border of the scapula beginning from superficial to deep are:

d. Trapezius, rhomboids, and erector spinae group

Rationale: Trapezius fibers are superficial and perpendicular, rhomboids are intermediate and run diagonal, and the deep ESG's run vertically and attach directly to the spine and ribs. The ESGs are the Erector Spinae Group and consists of the Spinalis, Longissimus, and Iliocostalis that run from the sacrum to the occiput on the posterior vertebral column.

Question 76: Which muscle has its insertion at a groove on the clavicle?

d. Subclavius

Rationale: The subclavius muscle has its insertion on the clavicle at the subclavian. The sternocleidomastoid has its origin at the clavicle and the sternum.

Question 77: Relative to its size, this muscle is the strongest muscle in the body, it can manage nearly one hundred-fifty pounds of pressure.

d. Masseter

Rationale: Masseter is the primary chewing muscle; Medial Pterygoid assists the Masseter.

Question 78: Which muscle of the leg is involved in the flexion of the thigh?

d. All of the above

Rationale: Flexion of the coxal joint: rectus femoris, ant. gluteus med, gluteus minimus, tensor fascia latae (TFL), sartorius, psoas major, and iliacus. ADductor magnus, longus, brevis, and pectineus assist in flexion.

Question 79: What is the term for the proximal end of the fibula?

a. Head

Rationale: The head is the term for the proximal end of the fibula. It articulates with the tibial fibular notch.

Question 80: What regulates the body temperature and is known as the thermostat of the body?

c. Hypothalamus

Rationale: Through autonomic nervous system pathways, the hypothalamus continually regulates body temperature around a set point of 96¼ to 100¼ by initiating heat-loss or heat-promoting mechanisms. Also called Homeostasis.

Question 81: The connective tissue that lines the joint cavities is the:

d. Synovial membrane

Rationale: Synovial membrane contains no epithelial cells but is a soft Areolar connective tissue. The membrane provides a smooth surface and secretes a lubricating fluid that cushions structures providing better movement for the joint.

Question 82: What is the term for the thin layer of tendon that connects the frontalis to the occipitalis?

d. Galea aponeurotica

Rationale: The galea aponeurotica is the term for the thin layer of connective tissue that connects the frontalis to the occipitalis.

Question 83: Which of the following is not part of the upper respiratory system?

d. Trachea

Rationale: Upper= Nostril, nasal cavity, oral cavity, pharynx, and larynx (vocal cords). Lower= Trachea, primary bronchi, lungs, and diaphragm.

Question 84: What four joints make up the shoulder complex?

d. Glenohumeral, acromioclavicular, sternoclavicular, and scapulothoracic

Rationale: Glenohumeral, acromioclavicular, sternoclavicular, and scapulothoracic attach the axial to the appendicular skeleton. The scapulothoracic articulation is a false joint, but nonetheless part of the shoulder complex.

Question 85: The arterioles connect to?

c. Capillaries

Rationale: Arteries turn into arterioles and then capillaries down to venuoles.

Question 86: A slightly movable joint is known as:

a. Amphiarthrotic

Rationale: Joint Function / Structure: Synarthrotic / Fibrous, Amphiarthrotic / Cartilaginous, Diarthrotic / Synovial. (SAD) Fibrous (S), cartilaginous (A) and Synovial (D).

Question 87: What muscle tendon attaches to the patellar ligament?

a. Quadriceps femoris

Rationale: The quadriceps femoris (rectus femoris, vastus lateralis, medialis, and intermedius, a.k.a quads) muscles tendon joins the patellar ligament to attach to the tibia at the tibial tuberosity.

Question 88: During the digestive process food enters?

d. Through the pharynx

Rationale: Alimentary canal or gastrointestinal (GI) tract= mouth, pharynx, esophagus, stomach, small intestine, and large intestine.

Question 89: Sebaceous glands are found in which layer of tissue?

c. Dermis

Rationale: The epidermis (epithelium) is the tough protective layer that is avascular (no blood supply or nerves). Strata layers, deep to superficial; stratum basale, spinosum, granulosum, lucidum, and corneum. The dermis is rich in blood vessels the dense connective tissue layers; upper papillary and deep reticular, also contains nerves.

Question 90: The main function of the spring ligament is to support the head of which bone?

a. Talus

Rationale: The spring or Plantar Calcaneonavicular ligament stabilizes the medial longitudinal arch, preventing flat foot by supporting the head of the talus.

Question 91: Which of the following is not typically a sympathetic response?

b. Nausea

Rationale: The sympathetic will cause tachycardia, nervousness, increase in blood pressure and fight-or-flight responses. Parasympathetic (rest and digest) is responsible for nausea.

Question 92: Which of the two lower leg bones is the largest?

d. Tibia

Rationale: The tibia or shin bone is the largest out of the tibia and fibula.

Question 93: In the upper-right quadrant we have what organs?

a. Liver and gallbladder

Rationale: Upper-Right quadrant of the abdomen houses the Liver and Gallbladder

Question 94: Which of the following muscles attach to the IT band?

b. Tensor fascia latae

Rationale: The IT (Iliotibial) band is the insertion to the TFL and gluteus maximus.

Question 95: The tibialis anterior and fibularis (peroneus) longus support the:

c. Transverse arch

Rationale: The transverse arch is a side-to-side concavity on the underside of the foot. The support of the anatomical stirrup (fibularis (peroneus) longus and tibialis anterior) helps prevent the collapse of the transverse arch.

Question 96: If you were talking about the integumentary system, you would be discussing?

b. The skin, nails, hair and sweat glands

Rationale: The skin, nails, hair, sweat and oil glands are all part of the integumentary system.

Question 97: Which muscle ADducts the arm?

b. Latissimus dorsi

Rationale: The ADductors of the glenohumeral joint: Latissimus dorsi, teres major, infraspinatus, teres minor, pectoralis

major (all), triceps brachii (long head), and coracobrachialis.

Question 98: Which plane divides the body into right and left equal halves?

c. Midsagittal

Rationale: Midsagittal or median can be viewed as a midline dividing the body into right and left halves. Sagittal is a vertical cut but not in equal halves. Transverse= horizontal, superior/inferior, and frontal or coronal is anterior/posterior.

Question 99: Which muscle is a direct synergist to the teres minor?

c. Infraspinatus

Rationale: Direct or complete synergists have all the same actions and cross all the same joints. Together the teres minor and infraspinatus (HEALS) Horizontally ABducts, Extends, ADducts, Laterally rotates, and stabilizes the head of the humerus Latissimus dorsi and teres major are also direct synergists.

Question 100: What are considered the main supportive components of the nervous system?

b. Neurons

Rationale: Neurons are the main structural component of the nervous system where much of the activity happens.