

Please attempt all questions. If you do not know the correct answer or response, please leave the question unanswered and move onto the next question.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1. Thoracic vertebrae T₂ through T₈ differ from the others in that:
 - (A) they have no transverse processes.
 - (B) they have superior and inferior demifacets.
 - (C) they have transverse foramina.
 - (D) they have no intervertebral discs.

2. Potentially damaging stimuli that result in pain are selectively detected by:
 - (A) interoceptors.
 - (B) photoreceptors.
 - (C) nociceptors.
 - (D) proprioceptors.

3. Inhibitory cells in the olfactory bulbs are called:
 - (A) mitral cells.
 - (B) granule cells.
 - (C) sustentacular cells.
 - (D) basal cells.

4. Articular cartilage found at the ends of the long bones serves to:
 - (A) attach tendons.
 - (B) produce red blood cells (hemopoiesis).
 - (C) provide a smooth surface at the ends of synovial joints.
 - (D) form the synovial membrane.

5. Which body cavity contains the pleural and pericardial cavities?
 - (A) abdominal cavity.
 - (B) pelvic cavity.
 - (C) thoracic cavity.
 - (D) dorsal cavity.

6. The ability of a specific tissue or organ to respond to the presence of a hormone is dependent on:
 - (A) the location of the tissue or organ with respect to the circulatory path.
 - (B) the membrane potential of the cells of the target organ.
 - (C) the presence of the appropriate receptors on the cells of the target tissue or organ.
 - (D) nothing – all hormones of the human body are able to stimulate any and all cell types because hormones are powerful and non-specific.

7. ADH:
- (A) increases urine production.
 - (B) promotes dehydration.
 - (C) is produced in the adenohypophysis.
 - (D) is inhibited by alcohol.
8. The abducens nerve:
- (A) supplies innervation to the lateral rectus muscle of the eye.
 - (B) relays sensory information from taste buds on the tongue.
 - (C) exits from the medulla.
 - (D) if paralysed, exhibits Bell's palsy.
9. A joint that is known as a suture is found:
- (A) in the skull only.
 - (B) in areas most prone to fracture.
 - (C) where functionally it is amphiarthrotic.
 - (D) in areas where bones have not yet closed.
10. Which of the following conditions is generally considered a non-inflammatory type of arthritis?
- (A) bursitis.
 - (B) tendonitis.
 - (C) osteoarthritis.
 - (D) rheumatoid arthritis.
11. The extensor carpi radialis brevis:
- (A) extends and abducts the wrist and is short.
 - (B) extends and adducts the wrist and has a small tendon.
 - (C) supinates the forearm and is a superficial muscle.
 - (D) extends the thumb and is a deep muscle.
12. Thyroid hormone (a small iodinated amine) enters target cells in a manner similar to:
- (A) insulin, because insulin is a small peptide.
 - (B) steroid hormones, because both diffuse easily into target cells.
 - (C) growth hormone, because the thyroid works synergistically with thyroid hormone.
 - (D) glucagon, because the structure of the glucagon is similar to that of thyroid hormone.
13. Paranasal sinuses are found in which of these facial bones:
- (A) zygomatic.
 - (B) nasal conchae.
 - (C) vomer.
 - (D) maxillae.

14. Choose the anatomical topic and definition that is not correctly matched.
- (A) Gross anatomy: study of structures visible to the eye.
 - (B) Microscopic anatomy: study of structures too small to be seen by the naked eye.
 - (C) Developmental anatomy: study of the changes in an individual from birth through old age.
 - (D) Embryology: study of the changes in an individual from conception to birth.
15. The _____ nerve is not a branch of the trigeminal nerve.
- (A) ophthalmic.
 - (B) maxillary.
 - (C) cervical.
 - (D) mandibular.
16. Broca's area:
- (A) corresponds to Brodmann's area 8.
 - (B) is usually found in the right hemisphere.
 - (C) serves the recognition of complex objects.
 - (D) is considered a motor speech area.
17. NREM sleep, in contrast to REM sleep, is associated with:
- (A) increased oxygen use.
 - (B) rapid eye movement.
 - (C) sleep spindles.
 - (D) vital signs are reaching their highest levels.
18. A structure that is composed of two or more tissues would be:
- (A) a complex tissue.
 - (B) an organ system.
 - (C) an organ.
 - (D) a complex cell.
19. The ethmoid bone is composed of all the following except the:
- (A) superior nasal concha.
 - (B) crista galli.
 - (C) cribriform plate.
 - (D) inferior nasal concha.
20. Which forms the major portion of the coxal bone?
- (A) ischium.
 - (B) pubis.
 - (C) ilium.
 - (D) pelvic.
21. The muscles that are found at openings of the body are collectively called:
- (A) convergent muscles.
 - (B) circular muscles.
 - (C) parallel muscles.
 - (D) divergent muscles.

22. Connective tissue sacs lined with synovial membranes that act as cushions in places where friction develops are called:
- (A) menisci.
 - (B) bursae.
 - (C) ligaments.
 - (D) tendons.
23. Which of the following statements is true regarding the location of the centre of gravity of the body?
- (A) It is 1cm posterior to the sacral promontory.
 - (B) It is 2cm anterior to the sacral foramina.
 - (C) It is 1cm lateral to the sacroiliac joints of the pelvis.
 - (D) It is 1cm superior to the medium sacral crest.
24. The anatomical position is characterised by all the following except:
- (A) body erect.
 - (B) arms at sides.
 - (C) palms turned posteriorly.
 - (D) thumbs pointed laterally.
25. After axonal injury, regeneration in peripheral nerves is guided by:
- (A) wallerian cells.
 - (B) schwann cells.
 - (C) dendrites.
 - (D) golgi organs.
26. The suture that connects the two parietal bones together is the:
- (A) coronal.
 - (B) sagittal.
 - (C) lambdoid.
 - (D) squamosal.
27. The process of bones increasing in width is known as:
- (A) closing of the epiphyseal plate.
 - (B) long bones reaching adult length and width.
 - (C) appositional growth.
 - (D) concentric growth.
28. The pancreas and liver work together to maintain homeostasis through:
- (A) positive feedback.
 - (B) negative feedback.
 - (C) both negative and positive feedback.
 - (D) neither positive nor negative feedback.
29. The antebrachium is composed of which of the following two bones?
- (A) the radius and the ulna.
 - (B) the humerus and the clavicle.
 - (C) the scapula and the clavicle.
 - (D) the humerus and the radius.

30. A vertical section through the body, dividing it into left and right, is called:
- (A) frontal.
 - (B) regional.
 - (C) sagittal.
 - (D) transverse.
31. Which is not a mucosa-associated lymphatic tissue?
- (A) tonsil.
 - (B) thymus.
 - (C) peyer's patch.
 - (D) appendix.
32. Articulations permitting only slight degrees of movement are:
- (A) amphiarthroses.
 - (B) synarthroses.
 - (C) diarthroses.
 - (D) synovial joints.
33. Which of the following is not a result of parasympathetic stimulation?
- (A) salivation.
 - (B) dilation of the pupils.
 - (C) increased peristalsis of the digestive viscera.
 - (D) relaxation of the urethral sphincter.
34. Which of the following regions of the nephron is most likely to be found in the renal medulla?
- (A) loop of Henle.
 - (B) proximal convoluted tubule.
 - (C) distal convoluted tubule.
 - (D) glomerulus.
35. The largest and longest nerve of the body is found in the:
- (A) cervical plexus.
 - (B) brachial plexus.
 - (C) lumbar plexus.
 - (D) sacral plexus.
36. Select the most correct statement concerning skin cancer.
- (A) most tumors that arise on the skin are malignant.
 - (B) squamous cell carcinomas arise from the stratum corneum.
 - (C) basal cell carcinomas are the least common but most malignant.
 - (D) melanomas are rare but must be removed quickly to prevent them from metastasizing.
37. Brain wave amplitude:
- (A) reflects the number of neurons firing synchronously.
 - (B) is an average of about 1 V.
 - (C) results from subtraction of delta waves from theta waves.
 - (D) is the measure of activity of specific individual neurons.

38. Golgi tendon organs:
- (A) are proprioceptors.
 - (B) are photoreceptors.
 - (C) are found primarily in dermal papillae.
 - (D) are exteroceptors.
39. Pressure, pain, and temperature receptors are:
- (A) interoceptors.
 - (B) exteroceptors.
 - (C) proprioceptors.
 - (D) chemoreceptors.
40. Which of the following is not one of the three main factors influencing blood pressure?
- (A) cardiac output.
 - (B) peripheral resistance.
 - (C) emotional state.
 - (D) blood volume.
41. Which of the following is not a true statement regarding gliding movements?
- (A) Gliding movements occur at the intercarpal and intertarsal joints.
 - (B) Gliding movements allow flexibility of the upper limbs.
 - (C) Gliding movements are multiaxial.
 - (D) An example of a gliding movement is nodding one's head.
42. The axial skeleton contains:
- (A) the skull, vertebral column, and pelvis.
 - (B) arms, legs, hands, and feet.
 - (C) the skull, vertebral column, and rib cage.
 - (D) shoulder and pelvic girdles.
43. Collections of nerve cell bodies outside the central nervous system are called:
- (A) nuclei.
 - (B) nerves.
 - (C) ganglia.
 - (D) tracts.
44. Which generalisation concerning movement by skeletal muscles is not true?
- (A) Muscles produce movement by pulling on bones.
 - (B) The bones serve as levers.
 - (C) During contraction the two articulating bones move equally.
 - (D) The movements produced may be of graded intensity.
45. The hypothalamic-hypophyseal tract:
- (A) connects the hypophysis to the pituitary gland.
 - (B) is partly contained within the infundibulum.
 - (C) conducts aldosterone to the hypophysis.
 - (D) is the site of prolactin synthesis.

46. Motion sickness seems to:
- (A) respond best to medication taken after salivation and pallor begins.
 - (B) respond best to medication the “boosts” vestibular inputs.
 - (C) results from activation of nausea centres in the brain stem.
 - (D) result from mismatch between visual and vestibular inputs.
47. Which one of the following is considered a functional system rather than an organ system?
- (A) endocrine.
 - (B) lymphatic.
 - (C) immune.
 - (D) nervous.
48. With the Bohr effect, more oxygen is released because:
- (A) a decrease in pH (acidosis) strengthens the haemoglobin-oxygen bond.
 - (B) a decrease in pH (acidosis) weakens the haemoglobin-oxygen bond.
 - (C) an increase in pH (alkalosis) strengthens the haemoglobin-oxygen bond.
 - (D) in increase in pH (alkalosis) weakens the haemoglobin-oxygen bond.
49. Spastic paralysis suggests involvement of the:
- (A) upper motor neurons.
 - (B) lower motor neurons.
 - (C) spinal nerve roots.
 - (D) neuromotor junction.
50. A sarcomere is:
- (A) the non-functional unit of skeletal muscle.
 - (B) the area between two Z discs.
 - (C) the area between two intercalated discs.
 - (D) the wavy lines on the cell seen in the microscope.
51. A fibrous joint that is a peg-in-socket is called a _____ joint.
- (A) syndesmosis.
 - (B) suture.
 - (C) synchondrosis.
 - (D) gomphosis.
52. Control of temperature, endocrine activity, and thirst are functions associated with the:
- (A) medulla.
 - (B) cerebellum.
 - (C) hypothalamus.
 - (D) thalamus.
53. The terms inversion and eversion pertain only to:
- (A) the hands.
 - (B) the feet.
 - (C) the arms.
 - (D) both A and B are correct.

54. The subarachnoid space lies between what two layers of meninges?
- (A) arachnoid and epidura.
 - (B) arachnoid and pia.
 - (C) arachnoid and dura.
 - (D) dura and epidura.
55. The ligaments that protect the alignment of the femoral and tibial condyles and limit the movement of the femur anteriorly and posteriorly are called:
- (A) cruciate ligaments.
 - (B) patellar ligaments.
 - (C) anterior ligaments.
 - (D) tibial collateral ligaments.
56. Newborn infants have a relatively higher concentration of _____ in their ECF than do adults.
- (A) iron.
 - (B) sodium.
 - (C) magnesium.
 - (D) bicarbonate.
57. Which of the following is (are) not the function(s) of the skeletal system?
- (A) support.
 - (B) storage of minerals.
 - (C) production of blood cells (hematopoiesis).
 - (D) strength.
58. Secretin is an enzyme that is liberated by the small intestinal mucosa in response to:
- (A) acidic chyme entering the small intestine.
 - (B) irritation in the lining of the stomach.
 - (C) distention of the stomach.
 - (D) the enterogastric reflex.
59. Factors in preventing (or delaying) osteoporosis include:
- (A) drinking fluoridated water.
 - (B) decreasing weight-bearing exercise.
 - (C) increasing dietary vitamin C.
 - (D) decreasing exposure to the sun.
60. Select the correct statement regarding blood cell formation.
- (A) the main sites of blood cell production in adults are the spleen and the liver.
 - (B) before the seventh month of fetal development, yellow marrow is the main site of blood cell formation.
 - (C) red marrow is the main site of blood cell formation throughout adult life.
 - (D) yellow marrow is the main site of leukocyte formation.
61. The distal portion of the small intestine contains clumps of lymph follicles called:
- (A) islets of Langerhans.
 - (B) peyer's patches.
 - (C) rugae.
 - (D) villi.

62. Endocrine glands have three different mechanisms to stimulate themselves; _____ is not one of them.
- (A) humoral.
 - (B) mechanical.
 - (C) neural.
 - (D) hormonal.
63. The "true wrist" or carpus consists of:
- (A) a group of eight short bones united by ligaments.
 - (B) the phalanges.
 - (C) the styloid processes of the radius and ulna.
 - (D) the metacarpals.
64. Compared to the shoulder, displacements of the hip joints are:
- (A) common due to the weight-bearing the hip endures.
 - (B) rare because of the ligament reinforcement.
 - (C) common in all people who are overweight.
 - (D) rare because the rotator cuff stabilizes the hip joint.
65. Which of the following signs of hypovolemic shock is a relatively late sign?
- (A) cold, clammy skin.
 - (B) increased heart rate.
 - (C) rapid thready pulse.
 - (D) rapidly falling blood pressure.
66. In a pennate muscle pattern:
- (A) muscles appear to be straplike.
 - (B) there is a narrow origin diverging to a broad insertion.
 - (C) there is a broad origin and fascicles converge toward a single tendon.
 - (D) muscles look like a feather.
67. The neural branch that forms the plexi of the body is the:
- (A) ramus communicantes.
 - (B) meningeal branch.
 - (C) dorsal ramus.
 - (D) ventral ramus.
68. Chemical digestion involves:
- (A) enzymatic assembly of monosaccharides into carbohydrates.
 - (B) anabolic processes.
 - (C) the addition of water to molecular bonds.
 - (D) mainly the large intestine.
69. A single-celled layer of epithelium that forms the lining of serous membranes is:
- (A) simple transitional.
 - (B) simple columnar.
 - (C) simple squamous.
 - (D) simple cuboidal.

70. Functions of testosterone include:
- (A) facilitation of muscle and skeletal growth in mass.
 - (B) loss of facial hair.
 - (C) growth of the breasts.
 - (D) drying of the skin.
71. Orbicularis oris:
- (A) closes, purses, and protrudes the lips.
 - (B) pulls the lower lip down and back.
 - (C) draws the eyebrows together.
 - (D) allows blinking, squinting, and various other protective mechanisms for the eye.
72. The single most abundant chemical substance of the body, accounting for 60% to 80% of body weight, is:
- (A) oxygen.
 - (B) protein.
 - (C) water.
 - (D) hydrogen.
73. If cardiac muscle is deprived of its normal blood supply, damage would primarily result from:
- (A) a decreased delivery of oxygen.
 - (B) a decrease in the number of available mitochondria for energy production.
 - (C) a lack of nutrients to feed into metabolic pathways.
 - (D) an inadequate supply of lactic acid.
74. Which of the following is likely during vigorous exercise?
- (A) Blood will be diverted to the digestive organs.
 - (B) The skin will be cold and clammy.
 - (C) Capillaries of the active muscles will be engorged with blood.
 - (D) Blood flow to the kidneys increases.
75. What kind of tissue is the forerunner of long bones in the embryo?
- (A) elastic connective tissue.
 - (B) dense fibrous connective tissue.
 - (C) fibrocartilage.
 - (D) hyaline cartilage.
76. Dark adaptation:
- (A) is much faster than light adaptation.
 - (B) results in inhibition of rod function.
 - (C) involves improvement of acuity and colour vision.
 - (D) involves accumulation of rhodopsin.
77. An immovable joint found only between skull bones is called a:
- (A) suture.
 - (B) condyle.
 - (C) cartilaginous joint.
 - (D) synovial joint.

78. Gouty arthritis is a painful condition caused by:
- (A) excessive blood levels of uric acid deposited as crystals in the soft tissue joints.
 - (B) a disorder in the body's immune system resulting in destruction of joints.
 - (C) a thickening of the synovial membrane and a decrease in fluid production.
 - (D) a bacterial infection in the bursae.
79. Matrix is:
- (A) cells and fibres.
 - (B) fibres and ground substance.
 - (C) ground substance and cells.
 - (D) composed of all organic compounds.
80. The cruciate ligaments of the knee:
- (A) tend to run parallel to one another.
 - (B) are also called collateral ligaments.
 - (C) prevent hyperextension of the knee.
 - (D) assist in defining the range of motion of the leg.
81. Which ligament of the knee initiates the knee-jerk reflex when tapped?
- (A) the patellar ligament.
 - (B) the medial patellar retinacula.
 - (C) the lateral patellar retinacula.
 - (D) the extracapsular ligament.
82. Sometimes prolonged excessive exposure to high hormone concentrations causes a phenomenon known as:
- (A) diabetes mellitus.
 - (B) cellular inhibition.
 - (C) down-regulation.
 - (D) metabolism of protein kinases.
83. A muscle located on the dorsal side of the body is the:
- (A) pectoralis minor.
 - (B) rectus femoris.
 - (C) rectus abdominis.
 - (D) infraspinatus.
84. Which of the following muscles inserts by the calcaneal tendon?
- (A) the semitendinosus.
 - (B) the sartorius.
 - (C) the tibialis anterior.
 - (D) the gastrocnemius.
85. Which receptors adapt most slowly?
- (A) smell receptors.
 - (B) pressure receptors.
 - (C) nociceptors.
 - (D) touch receptors.

86. Which of these effectors is not directly controlled by the autonomic nervous system?
- (A) smooth muscle.
 - (B) cardiac muscle.
 - (C) skeletal muscle.
 - (D) most glands.
87. The bone in direct contact with the first metatarsal (big toe) is the:
- (A) medial cuneiform.
 - (B) lateral cuneiform.
 - (C) cuboid.
 - (D) calcaneus.
88. A good example of a positive feedback mechanism would be:
- (A) body temperature regulation.
 - (B) regulating glucose levels in the blood.
 - (C) enhancement of labour contractions by oxytocin.
 - (D) blood calcium level regulation.
89. With regard to muscle fibre arrangement in a pennate muscle:
- (A) the fascicles are short and attach obliquely to a central tendon that runs the length of a muscle.
 - (B) the fascicular pattern is circular.
 - (C) the fasciculus form a triangle.
 - (D) the fascicles are in a fusiform arrangement.
90. A joint united by dense fibrocartilaginous tissue that permits a slight degree of movement is a :
- (A) suture.
 - (B) syndesmosis.
 - (C) symphysis.
 - (D) gomphosis.
91. The inferiormost part of the sternum is the:
- (A) xiphoid process.
 - (B) body.
 - (C) manubrium.
 - (D) ala.
92. Fibres that enter and leave the sympathetic chain without synapsing form structures called:
- (A) white rami communicantes.
 - (B) gray rami communicantes.
 - (C) spinal nerves.
 - (D) splanchnic nerves.
93. In a crossed extensor reflex, if the right arm were grabbed it would flex and the left arm would:
- (A) also flex.
 - (B) extend.
 - (C) abduct.
 - (D) adduct.

94. If a patient was suffering from bursitis, this condition would be designated as inflammation of a(n):
- (A) sesamoid bone found at a joint.
 - (B) cavity within a long bone.
 - (C) small sac containing fluid.
 - (D) articular cartilage.
95. In flexing the forearm at the elbow, the:
- (A) biceps brachii acts as antagonist.
 - (B) triceps brachii acts as antagonist.
 - (C) brachioradialis acts as antagonist.
 - (D) coracobrachialis acts as antagonist.
96. The major function of the axial skeleton is to:
- (A) give the body resilience.
 - (B) provide an attachment point for muscles that allow movement.
 - (C) provide central support for the body and protect internal organs.
 - (D) provide a space for the heart and lungs.
97. Foramen ovale:
- (A) connects the two atria in the fetal heart.
 - (B) is a condition in which the heart valves do not completely close.
 - (C) is a shallow depression in the interventricular septum.
 - (D) is a connection between the pulmonary trunk and the aorta in the fetus.
98. Scissors demonstrate which type of lever?
- (A) a first-class lever.
 - (B) a second-class lever.
 - (C) a third-class lever.
 - (D) a fourth-class lever.
99. The term pollex refers to the:
- (A) great toe.
 - (B) calf.
 - (C) fingers.
 - (D) thumb.
100. The structure of bones suits the function. Which of the following bones is adapted to withstand stress?
- (A) spongy bone.
 - (B) irregular bone.
 - (C) compact bone.
 - (D) trabecular bone.
101. Which of the following does not compress the abdomen?
- (A) internal oblique.
 - (B) external oblique.
 - (C) transversus abdominis
 - (D) coccygeus

102. The neurohypophysis or posterior lobe of the pituitary gland is not a true endocrine gland because:
- (A) it is strictly a part of the neural system and has little or nothing to do with hormonal release.
 - (B) embryonically it was an endocrine tissue, but in the adult human it is no longer functional.
 - (C) it is unable to function as an endocrine tissue because it is actually part of the neural system due to its location.
 - (D) it is only a hormone storage area that receives hormones from the hypothalamus for release.
103. In symphysis joints the articular surfaces of the bones are covered with:
- (A) hyaline cartilage.
 - (B) synovial membranes.
 - (C) fibrocartilage.
 - (D) tendon sheaths.
104. A diet rich in minerals would include which of the following foods?
- (A) fats, sugars, and apples.
 - (B) refined cereals, grains, and rye bread.
 - (C) legumes, milk and pork.
 - (D) eggs, bacon and pizza.
105. Dominant alleles are so called because under most circumstances they:
- (A) code only for tallness and dark skin.
 - (B) suppress the expression of other alleles.
 - (C) code for genes that are never considered lethal.
 - (D) code for most phenotypic and genotypic expressions of a trait.
106. What is the major factor controlling the manner in which levers work?
- (A) the structural characteristics of the muscles of the person using the lever.
 - (B) the weight of the load.
 - (C) the direction the load is being moved.
 - (D) the difference in the positioning of the effort, load and fulcrum.
107. Which of these is not a way of classifying muscles?
- (A) muscle location.
 - (B) the type of muscle fibres.
 - (C) the type of action they cause.
 - (D) muscle shape.
108. What primarily determines the power of a muscle?
- (A) the length.
 - (B) the shape.
 - (C) the number of neurons innervating it.
 - (D) the total number of muscle cells available for contraction.

109. Glands, such as the thyroid, that secrete their products directly into the blood rather than through ducts are classified as:
- (A) exocrine.
 - (B) endocrine.
 - (C) sebaceous.
 - (D) ceruminous.
110. Cholesterol is used in the cell membrane to:
- (A) help make the membrane more rigid.
 - (B) help make the membrane more fluid.
 - (C) assist in cell recognition by the immune system.
 - (D) allow carbohydrates to pass through the membrane.
111. Which statement about CO₂ is incorrect?
- (A) Its concentration in the blood is decreased by hyperventilation.
 - (B) Its accumulation in the blood is associated with a decrease in pH.
 - (C) More CO₂ dissolves in the blood plasma than is carried on the RBCs.
 - (D) CO₂ concentrations are greater in venous blood than arterial blood.
112. The membranous areas between the cranial bones of the fetal skull are called:
- (A) areolas.
 - (B) foramina.
 - (C) sutures.
 - (D) fontanels.
113. Synarthrotic joints:
- (A) are found at the junction of the epiphysis and diaphysis of growing bone.
 - (B) are cartilaginous joints.
 - (C) permit essentially no movement.
 - (D) have large joint cavities.
114. The major function of the intervertebral disks is to:
- (A) absorb shock.
 - (B) string the vertebrae together.
 - (C) prevent injuries.
 - (D) prevent hyperextension.
115. Synovial fluid is present in joint cavities of freely movable joints. Which of the following statement is true about this fluid?
- (A) It contains enzymes only.
 - (B) It contains lactic acid.
 - (C) It contains hyaluronic acid.
 - (D) It contains hydrochloric acid.

116. The part of neuron that conducts impulses away from its cell body is called a(n):
- (A) axon.
 - (B) dendrite.
 - (C) neurolemma.
 - (D) schwann cell.
117. A muscle that provides the major force for producing a specific movement is called:
- (A) a synergist.
 - (B) an agonist.
 - (C) an antagonist.
 - (D) a fixator.
118. Bending your head back until it hurts is an example of:
- (A) flexion.
 - (B) extension.
 - (C) hyperextension.
 - (D) circumduction.
119. A structure found on the femur is the:
- (A) anterior crest.
 - (B) malleolus.
 - (C) linea aspera.
 - (D) apex.
120. A nursing infant develops a powerful sucking muscle that adults also use for whistling called the:
- (A) platysma.
 - (B) masseter.
 - (C) zygomaticus.
 - (D) buccinator.
121. Which of the following organs or structures would be found in the left iliac region?
- (A) appendix
 - (B) stomach
 - (C) liver
 - (D) intestines
122. An example of an interosseus fibrous joint is:
- (A) the clavicle and the scapula at the distal ends.
 - (B) the radius and ulna along its length.
 - (C) between the vertebrae.
 - (D) between the humerus and the glenoid cavity.
123. Which of the following is true about smooth muscle contraction?
- (A) Certain smooth muscle cells can actually divide to increase their numbers.
 - (B) Smooth muscle, in contrast to skeletal muscle, cannot synthesize or secrete any connective tissue elements.
 - (C) Smooth muscle cannot stretch as much as skeletal muscle.
 - (D) Smooth muscle has well-developed T tubules at the site of invagination.

124. Which of the following is true about paranasal sinuses?
- (A) Paranasal sinuses lighten the skull.
 - (B) Paranasal sinuses enhance the resonance of the voice.
 - (C) Paranasal sinuses contain passages acting as one-way valves.
 - (D) Paranasal sinuses are found in maxillary, ethmoid, and lacrimal bones.
125. An important characteristic of urine is its specific gravity or density, which is:
- (A) 1.041-1.073.
 - (B) 1.001-1.035.
 - (C) 1.030-1.040.
 - (D) 1.00-1.015
126. Which of the following cutaneous receptors is specialised for the reception of touch or light pressure?
- (A) Meissner's corpuscles.
 - (B) Pacinian corpuscles.
 - (C) free nerve endings.
 - (D) Krause's end bulbs.
127. All of the following are true of graded potentials except that they:
- (A) are short-lived.
 - (B) can form on receptor endings.
 - (C) increase amplitude as they move away from the stimulus point.
 - (D) can be called postsynaptic potentials.
128. Muscle tone is:
- (A) the ability of a muscle to efficiently cause skeletal movements.
 - (B) the feeling of well-being following exercise.
 - (C) a state of sustained partial contraction.
 - (D) the condition of athletes after intensive training.
129. Adductor magnus, adductor longus, and adductor brevis are parts of a large muscle mass of the:
- (A) lateral rotators.
 - (B) anterior compartment of the thigh.
 - (C) posterior muscle group of the thigh.
 - (D) medial compartment of the thigh.
130. Saddle joints have concave and convex surfaces. Name the bones of the hand that articulate to form a saddle joint:
- (A) the scaphoid of the index finger and the triquetral of the middle finger.
 - (B) the trapezium of the ring finger and the capitate of the fourth finger.
 - (C) the scaphoid of the middle finger and lunate of the index finger.
 - (D) the trapezium of the carpal bone and the thumb's metacarpal.

131. Which of the following statements is true concerning feedback mechanisms?
- (A) Positive feedback mechanisms always result in excessive damage to the host.
 - (B) Negative feedback mechanisms tend to increase the original stimulus.
 - (C) Negative feedback mechanisms work to prevent sudden severe changes within the body.
 - (D) Blood glucose levels are regulated by positive feedback mechanisms.
132. Smooth muscle is characterised by all of the following except:
- (A) it appears to lack troponin.
 - (B) there are more thick filaments than thin filaments.
 - (C) there are no sarcomeres.
 - (D) there are noncontractile intermediate filaments that attach to dense bodies within the cell.
133. Which statement about enzymes is false?
- (A) Enzymes raise the activation energy needed to start a reaction.
 - (B) Enzymes are composed mostly of protein.
 - (C) Enzymes are organic catalysts.
 - (D) Enzymes may be damaged by high temperature.
134. To exhale forcibly, one would contract the:
- (A) diaphragm alone.
 - (B) internal intercostals and diaphragm.
 - (C) external intercostals and diaphragm.
 - (D) rectus abdominis and diaphragm.
135. Which of the following is true about the movement of ions across excitable living membranes?
- (A) Ions always move actively across membranes through leakage channels.
 - (B) Some ions are prevented from moving down their concentration gradients by ATP-driven pumps.
 - (C) Sodium gates in the membrane can open in response to electrical potential changes.
 - (D) The bulk of the solutions inside a cell are negatively charged.
136. In the epiphyseal plate, cartilage grows:
- (A) from the diaphysis to the epiphysis.
 - (B) from the epiphysis to the diaphysis.
 - (C) from the edges inward.
 - (D) in a circular fashion.
137. The extensor digitorum longus has which type of fascicle arrangement?
- (A) circular.
 - (B) convergent.
 - (C) unipennate.
 - (D) bipennate.
138. Paralysis of which of the following would make an individual unable to flex the thigh?
- (A) biceps.
 - (B) vastus medialis.
 - (C) soleus.
 - (D) iliopsoas and rectus femoris.

139. Spongy bones are made up of a framework called:
- (A) osteons.
 - (B) lamellar bone.
 - (C) trabeculae.
 - (D) osseous lamellae.
140. Tennis players often complain about pain in the arm (forearm) that swings the racquet. What muscle is usually strained under these conditions?
- (A) the triceps brachii.
 - (B) the anconeus.
 - (C) the brachioradialis.
 - (D) the flexor digitorum profundus.
141. If oxygen exerts 159 mm Hg at sea level, then nitrogen exerts _____ mm Hg.
- (A) 569.
 - (B) 597.
 - (C) 620.
 - (D) 760.
142. Which of the following is produced by epithelial membranes as a first line of defence protection?
- (A) sebum.
 - (B) haptens.
 - (C) antibodies.
 - (D) complement.
143. Which of the following would not be functional characteristics of life?
- (A) movement.
 - (B) responsiveness to external stimuli.
 - (C) maintenance of boundaries.
 - (D) decay.
144. Which of the following statements is most correct of homeostatic imbalance?
- (A) It is considered the cause of most diseases.
 - (B) The internal environment is becoming more stable.
 - (C) Positive feedback mechanisms are overwhelmed.
 - (D) Negative feedback mechanisms take over.
145. Natural killer (NK) cells:
- (A) are also called cytotoxic T cells.
 - (B) are a type of phagocyte.
 - (C) are cells of the specific immune system.
 - (D) can kill cancer cells before the immune system is activated.

146. Prolactin:
- (A) is a steroid hormone.
 - (B) is regulated by releasing hormones.
 - (C) hyposecretion is more common than hypersecretion.
 - (D) inhibiting hormone release is caused by the nursing infant.
147. The skull bone that the foramen magnum passes through is the:
- (A) atlas.
 - (B) axis.
 - (C) occipital
 - (D) parietal.
148. Place the following in correct sequence from simplest to most complex:
- 1. molecules
 - 2. atoms
 - 3. tissues
 - 4. cells
 - 5. organ
- (A) 1-2-3-4-5.
 - (B) 2-1-4-3-5.
 - (C) 2-1-3-4-5.
 - (D) 1-2-4-3-5.
149. Which of the following is not a type of cytoplasmic inclusion?
- (A) glycogen granules.
 - (B) lipid droplets.
 - (C) pigment granules.
 - (D) ribosomes.
150. If an atom were to have two protons, then it would:
- (A) have a valence of 0.
 - (B) be very stable.
 - (C) be chemically active.
 - (D) have three electrons.
151. Which of the following muscles is involved in inversion at the ankle joint?
- (A) tibialis anterior.
 - (B) extensor digitorum longus.
 - (C) peroneus tertius.
 - (D) peroneus longus.
152. All of the following are true of skill memory except that it:
- (A) is hard to unlearn.
 - (B) is acquired through practice.
 - (C) must involve the midbrain.
 - (D) is best remembered in the doing.

153. Select the correct statement(s) about the functional components of neurons:
- (A) The conducting component usually transmits impulses toward the cell body.
 - (B) The secretory component causes the release of chemical substances.
 - (C) Axon terminals are the conducting component.
 - (D) Nissl bodies are found in the axons and dendrites.
154. Which of the following is true regarding articulations?
- (A) All articulations are moveable.
 - (B) Fewer articulations would allow greater movement.
 - (C) With one exception, all bones of the body articulate with at least one other.
 - (D) Both A and C are true.
155. Osteomyelitis is:
- (A) partially due to insufficient dietary calcium.
 - (B) literally known as "soft bones".
 - (C) due to pus-forming bacteria.
 - (D) caused by altered vitamin D metabolism.
156. The posterior side of the patella would be called:
- (A) sural.
 - (B) crural.
 - (C) antecubital.
 - (D) popliteal.
157. The presence of lacunae, calcium salts, and blood vessels would indicate:
- (A) cartilage tissue.
 - (B) fibrocartilaginous tissue.
 - (C) osseous tissue.
 - (D) areolar tissue.
158. The smooth muscle of the digestive viscera is served largely by the:
- (A) lumbar splanchnic nerves.
 - (B) cephalic plexus.
 - (C) pelvic nerves.
 - (D) tenth cranial nerve.
159. Which of the following blood pressure readings would be indicative of hypertension
- (A) 120/80 in a 30-year-old man.
 - (B) 140/90 in a 70-year-old woman.
 - (C) 170/96 in a 50-year-old man.
 - (D) 110/60 in a 20-year-old woman.
160. Which of the following muscles is a flexor of the thigh?
- (A) gracilis.
 - (B) vastus lateralis.
 - (C) adductor magnus.
 - (D) gluteus maximus.

161. Select the correct statement about the hormonal events of the ovarian cycle.
- (A) Rising levels of estrogen start follicle development.
 - (B) High estrogen levels result in a surge of LH release.
 - (C) The follicle begins to secrete progesterone in response to estrogen stimulation.
 - (D) The LH surge stimulates further development of the secondary oocyte.
162. In some cases the epiphyseal plate of the long bones of youngsters closes too early. What might be the cause?
- (A) overproduction of thyroid hormone.
 - (B) elevated levels of sex hormones.
 - (C) too much vitamin D in the diet.
 - (D) osteoblast activity exceeds osteoclast activity.
163. The anatomical position is used:
- (A) rarely, because people don't usually assume this position.
 - (B) as a standard reference point for directional terms regardless of the actual position of the body.
 - (C) only when a body is lying down.
 - (D) as the most comfortable way to stand when dissecting a cadaver.
164. James has a haemoglobin measurement of 16g/100ml blood. This is:
- (A) above normal.
 - (B) normal only if James is an infant.
 - (C) abnormally low.
 - (D) within the normal range.
165. Choose the statement that is most correct about orbits.
- (A) The orbits are formed of both facial and cranial bones.
 - (B) The orbits contain only facial bones.
 - (C) The orbits contain only cranial bones.
 - (D) The orbits are made entirely of cartilage.
166. Thoracic vertebrae 11 and 12 are different from the others in which of the following characteristics?
- (A) The orientation of the articular processes is different from all the other thoracic vertebrae.
 - (B) The transverse processes do not have facets that articulate with the tubercles of the ribs.
 - (C) There are two foramina on vertebrae 11 and 12.
 - (D) The spinous processes are directed parallel with the centrum.
167. The parietal pleural would represent a serous membrane:
- (A) covering individual lungs.
 - (B) lining the thoracic cavity.
 - (C) covering the heart.
 - (D) lining the abdominal cavity.

168. The superior orbital fissure is formed in the sphenoid bone, whereas the inferior orbital is formed between the _____ and _____.
(A) sphenoid/maxilla.
(B) sphenoid/zygomatic.
(C) sphenoid/ethmoid.
(D) sphenoid/lacrimal
169. Injury to the hypothalamus may result in all of the following except:
(A) pathologic sleep.
(B) loss of body temperature control.
(C) production of excessive quantities of urine.
(D) loss of proprioception.
170. Derivatives of the mesoderm include:
(A) tooth enamel.
(B) endothelium of blood and lymph vessels.
(C) glandular derivatives of the digestive tract.
(D) epithelium of the digestive tract.
171. Growth of bones is controlled by a symphony of hormones. Which hormone is important for bone growth during infancy childhood?
(A) thyroid hormone.
(B) somatomedins.
(C) growth hormone.
(D) prolactin.
172. Most electrolyte reabsorption by the renal tubules:
(A) is T_m limited.
(B) is in the distal convoluted tubule.
(C) is hormonally controlled in distal tubule segments.
(D) is completed by the time the loop of Henle is reached.
173. The only amine hormone to act like a steroid is:
(A) TH.
(B) ACTH.
(C) GH.
(D) ADH.
174. Extracapsular ligaments stabilising the knee include:
(A) the patellar ligament extending from femur to patella.
(B) lateral and medial collateral ligaments preventing lateral or medial angular movements.
(C) cruciate ligaments, which help secure the articulating bones together.
(D) the oblique popliteal crossing the knee anteriorly.

175. Loss of ability to perform skilled motor activities such as piano playing, with no paralysis or weakness in specific muscles, might suggest damage to the:
- (A) spinal cord.
 - (B) premotor cortex.
 - (C) primary motor cortex.
 - (D) rubrospinal tracts.
176. Paralysis of which of the following would make an individual unable to flex the knee?
- (A) hamstring muscles.
 - (B) gluteal muscles.
 - (C) brachioradialis.
 - (D) soleus.
177. Tendon sheaths:
- (A) act as friction-reducing structures.
 - (B) are lined with dense irregular connective tissue.
 - (C) form channels for tendons.
 - (D) help anchor the tendon to the muscle.
178. Which of the following muscles serves as a common intramuscular injection site, particularly in infants?
- (A) the vastus intermedius.
 - (B) the vastus medialis.
 - (C) rectus femoris.
 - (D) the vastus lateralis.
179. Which of the following organs is affected by thyroid hormone?
- (A) liver.
 - (B) spleen.
 - (C) testes.
 - (D) brain.
180. When a person's hypothalamic thermostat is set to a higher level and the actual body temperature is below that level, the person may:
- (A) pant.
 - (B) exhibit vasodilation.
 - (C) perspire heavily.
 - (D) shiver.

