



## BIOLOGY

### BOOKS - TRUEMAN BOOK COMPANY BIOLOGY (HINGLISH)

#### LOCOMOTION AND MOVEMENTS

#### Multiple Choice Question

1. Striped muscle are

- A. syncytial
- B. uninucleate
- C. spindle shaped
- D. none of these

**Answer: A**



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2. Functional unit of skeletal muscle is called

- A. Sarcolemma
- B. Z-band
- C. Sarcomere
- D. Sarcoplasm

**Answer: C**



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3. Sarcomme is the part between two

- A. H-lines
- B. A-lines
- C. I-lines

D. Z-lines

**Answer: D**



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#### 4. Statements

A-bands of the muscle are dark and contain myosin

I-band are the light bands and contain actin

During muscle contraction the A-band contracts

The part between the two Z-lines is called as sarcomere

The central part of thin filament, not over-lapped by thick filament is called H-zone of the above statements.

- A. A,C,E are correct while, B,D are incorrect
- B. A,B,C and E are correct while D is incorrect
- C. A,B and D are correct while C and E are incorrect
- D. A,B and C are correct while D and E are incorrect

**Answer: C**



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**5. H-zones are found in**

- A. myofibril of unstriated muscle
- B. myofibril of striated muscle
- C. light band
- D. none of the above

**Answer: B**



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**6. Major protein in the thick filaments of skeletal muscle fibre is**

- A. actin

B. myosin

C. troponin

D. tropomyosin

**Answer: B**



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7. Myosin myofilaments are

A. attached to the Z-disk

B. absent from the H-zone

C. found primarily in the I-band

D. none of the above

**Answer: D**



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8. The largest muscle in the human body is

- A. gluteus maximus
- B. stapedius
- C. sartorius
- D. masseter

**Answer: A**



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9. Smallest muscle in the human body is

- A. stapes
- B. sartorius
- C. stapedius
- D. spinal muscle

**Answer: C**



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**10. Quadriceps and gastrocnemius muscles lie in**

A. lower limb

B. hands

C. wrist

D. shoulder

**Answer: A**



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**11. Smooth muscles are**

A. involuntary, spindle shaped, uninucleated, unbranched

B. voluntary, multinucleate and cylindrical

C. involuntary, cylindrical, multinucleate

D. voluntary, branched, uninuclear

**Answer: A**



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**12. Largest smooth muscle is present in**

A. leg

B. thigh

C. heart

D. uterus of pregnant woman

**Answer: D**



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13. Striated muscles contract because of

- A. sliding of myosin filaments on actin filaments
- B. sliding of actin filaments on myosin filaments
- C. myosin filaments coming close to each other
- D. actin filaments sliding over one another

**Answer: B**



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14. During muscle contraction

- A. size of I-band increases
- B. diameter of fibre increases
- C. size of A-bands remains same
- D. Size of H-zone becomes larger

**Answer: C**



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**15.** When a skeletal muscle shortens during contraction, which of these statements is false?

- A. The I-bands shorten
- B. The A-bands shorten
- C. The H-bands shorten
- D. The sarcomeres shorten

**Answer: B**



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**16.** Which statement is correct for muscle contraction?

- A. Length of H-zone decreases
- B. Length of A-band decreases
- C. Length of two Z-line increases
- D. Length of I-band remains constant

**Answer: A**

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17. During contraction of skeletal muscle  $Ca^{2+}$  bind to

- A. actin
- B. troponin
- C. tropomyosin
- D. myosin ATPase

**Answer: B**

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18. The long protein molecule, which masks the active sites on the f-actin is

- A. myosin
- B. troponin
- C. tropomyosin
- D. light meromyosin

**Answer: C**



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19. Which of these statements about the molecular structure of myofilaments is true?

- A. ATPase is found on troponin
- B. Tropomyosin has a binding site for  $Ca^{2+}$

C. Troponin bind to the rodlike portion of myosin

D. The head of the myosin molecule binds to an active site on actin

**Answer: D**



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**20. Which yield ATP during muscle contraction?**

A. Oxygen

B. Myoglobin

C. Cholesterol

D. Creatine phosphate

**Answer: D**



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21. The lactic acid generated during muscle contraction is converted to glycogen mainly in

- A. liver
- B. muscle
- C. adrenals
- D. pancreas

**Answer: A**



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22. During fatigue

- A. muscle fails to relax
- B. muscle fails to be stimulated
- C. blood circulation in muscles stops
- D. motor nerve does not respond to external stimulus

**Answer: B**



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**23.** Stimulus several times greater than threshold stimulus is provided to muscle fibre. It will

- A. undergo tetany
- B. contract slightly
- C. contract forcefully
- D. contract with same force

**Answer: D**



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**24.** Muscle activity of our body

- A. decreases BMR
- B. decreases venous return
- C. increases body temperature
- D. reduces blood and lymph flow

**Answer: C**



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**25.** The muscles which contract to produce opposite movements at the same joint are called

- A. synergists
- B. antagonists
- C. prime movers
- D. none of these

**Answer: B**



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26. Which of the following are not antagonistic muscles?

- A. Flexor and extensor
- B. Pronator and supinator
- C. Abductor and adductor
- D. Protractor and supinator

**Answer: D**

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27. Biceps and triceps surround

- A. ulna
- B. femur
- C. radius

D. humerus

**Answer: D**



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**28.** The muscles which on contraction rotates the forearm the make palm face upward and forward is

A. pronator

B. supinator

C. abductor

D. adductor

**Answer: B**



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29. When body part moves towards the median axis, it is called

A. adductor

B. pronator

C. abductor

D. supinator

**Answer: A**



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30. For the elbow joint, triceps is

A. flexor

B. extensor

C. adductor

D. retractor

**Answer: B**



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**31.** Spreading the fingers apart is

- A. rotation
- B. flexion
- C. abduction
- D. depression

**Answer: C**



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**32.** Red muscle fibres are rich in

- A. cholesterol

B. lysosomes

C. microsomes

D. mitochondria

**Answer: D**



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**33.** Which of the following statements is not true?

A. White muscle fibres are rich in mitochondria

B. Muscles of eyeball movements are white fibres

C. Red muscle fibres are slower in contraction rate

D. White muscle fibres depend mainly on anaerobic glycolysis

**Answer: A**



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**34.** Red muscle are rich in

- A. relaxin
- B. myosin
- C. lactic acid and acetic acid
- D. myoglobin and cytochrome

**Answer: D**



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**35.** A single isolated contraction of the muscle fibre is called

- A. twitch
- B. tetanus
- C. tetanus
- D. contracture

**Answer: A**



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**36.** A sustained state of contraction caused by rapid succession of many stimuli is

- A. twitch
- B. fatigue
- C. tetanus
- D. contracture

**Answer: C**



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**37.** Which of the following is a short bone?

- A. carpal
- B. patella
- C. Sternum
- D. Humerus

**Answer: A**

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**38.** Which of the following is a flat bone?

- A. Tibia
- B. Tarsal
- C. Malleus
- D. Sternum

**Answer: D**

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39. The smallest irregular bone in man is

- A. Nasal
- B. stapes
- C. patella
- D. palatine

**Answer: B**



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40. Long bones of mammals provide

- A. support only
- B. support and produce RBCs only
- C. support and produce WBCs only

D. support and produce RBCs and WBCs

**Answer: D**



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**41.** Ends of the long bones are covered by

A. tendons

B. cartilage

C. ligaments

D. blood cells

**Answer: B**



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**42.** Bone formed by the ossification of a tendon is called

- A. dermal bone
- B. cartilage bone
- C. sesamoid bone
- D. membrane bone

**Answer: C**

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**43.** Which one is formed by the ossification of tendon?

- A. Tibia
- B. patella
- C. Trapezoid
- D. Calcaneum

**Answer: B**

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44. Total number of bones in the adult human is

A. 206

B. 406

C. 106

D. 306

**Answer: A**



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45. Which of these is a part of appendicular skeleton?

A. Ribs

B. Cranium

C. Clavicle

D. Vertebrae

**Answer: C**



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**46.** Number of bones in human appendicular skeleton is

A. 80

B. 126

C. 120

D. 142

**Answer: B**



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**47.** Find out the correct order of number of bones in the parts of skull such as cranial bones, facial bone, hyoid bone and middle ear bones respectively

A. 14, 8, 1 and 3

B. 3,8,14 and 1

C. 8,14,1 and 3

D. 14,8,3 and 1

**Answer: C**



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**48.** Cheek bones are

A. parietals

B. ethmoids

C. lacrimals

D. zygomatic

**Answer: D**



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**49.** Foramen magnum is present at

A. base of skull

B. base of brain

C. base of medulla

D. apex of vertebral column

**Answer: A**



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**50.** The only movable bone in the skull is

A. mandible

B. maxilla

C. ethmoid

D. none of these

**Answer: A**



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**51. Lower jaw of man is made up of**

A. 1 bone

B. 2 bones

C. 3 bones

D. no bones, only muscles

**Answer: A**



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52. Hyoid bones is located at the

- A. front of the skull
- B. behind the skull
- C. top of the buccal cavity
- D. floor of the buccal cavity

**Answer: D**



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53. The number of vertebrae present in cervical, thoracic, lumbar, sacral and coccyx regions are respectively

- A. 7,12,5,1,1
- B. 7,5,1,12,1
- C. 12,7,5,1,1,

D. 1,7,5,12,1

**Answer: A**



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**54.** Consider the following statements

A. In man, vertebral column has 33 vertebrae organized as 28 bones.

B. Pelvic girdle is made up of two fused bones only.

C. Osteoporosis is characterized by microarchitectural deterioration of the bone.

A. A alone is correct

B. B alone is correct

C. C alone is correct

D. A alone is incorrect

**Answer: C**



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55. In man, coccygeal bone is formed by the fusion of..... vertebrae.

A. 3

B. 4

C. 5

D. 6

**Answer: B**



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56. Which of the following form thoracic cage of man?

A. Ribs and sternum

B. Ribs and thoracic vertebrae

C. Ribs, sternum and lumbar vertebrae

D. Ribs, sternum and throraic vertebrae

**Answer: D**



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**57.** Manubrium is a part of

A. Skull

B. Pelvic girdle

C. Thoracic

D. Pectoral girdle

**Answer: C**



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**58.** Ribs attached to sternum are

- A. first seven pairs
- B. all ten ribs
- C. first ten rib pairs
- D. first five rib pairs.

**Answer: A**

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**59. Floating ribs of thoracic cage are**

- A. 1st to 7<sup>th</sup> pair
- B. 8th to 9th pair
- C. 8th to 10th pair
- D. 11th to 12th pair

**Answer: D**

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60. Which of the these statements concerning ribs is true?

- A. There are five pairs of floating ribs
- B. Floating ribs do not attach to vertebrae
- C. The head of the rib attaches to the manubrium of sternum
- D. The true ribs attach directly to the sternum with costal cartilage

**Answer: D**



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61. Which one is a part of pectoral girdle?

- A. Ilium
- B. Ischium
- C. Acetabulum

D. Glenoid cavity

**Answer: D**



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**62.** Collar bone is

A. patella

B. scapula

C. clavicle

D. coracoid

**Answer: C**



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**63.** The point where the scapula and clavicle articulate is

- A. glenoid cavity
- B. coracoid process
- C. trochlea
- D. acromion process

**Answer: D**

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**64.** When comparing the pectoral girdle with the pelvic girdle which of the these statements is true?

- A. The pelvic girdle is more firmly attached to the body than the pectoral girdle
- B. The pectoral girdle has the limbs more securely attached than the pelvic girdle
- C. The pelvic girdle allows greater mobility than the pectoral girdle



D. The pectoral girdle has greater mass than the pelvic girdle

**Answer: A**



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**65.** How many bones are present in our arms?

A. 32

B. 60

C. 45

D. 25

**Answer: B**



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**66.** Number of wrist bones is

A. 8

B. 9

C. 7

D. 6

**Answer: A**



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**67.** The total number of bones in the hindlimb of a man is

A. 14

B. 21

C. 24

D. 30

**Answer: D**



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68. The bone of the foot to which the tibia is attached is

- A. talus
- B. metatarsals
- C. phalangers
- D. calcaneus

**Answer: A**



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69. Digital formula of both limbs in man is

- A. 2,3,3,4,3
- B. 2,3,3,3,3
- C. 3,3,3,3,2

D. 2,2,3,3,3

**Answer: B**



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70. Immovable joint is

A. synarthrodial

B. amphiarthrodial

C. diarthrodial

D. all of these

**Answer: A**



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71. The type of joint between the human skull bones is

- A. hinge
- B. fibrous
- C. synovial
- D. cartilaginous

**Answer: B**

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**72. Sutural joints are found between**

- A. parietals of skull
- B. thumb and metatarsal
- C. humerus and radio-ulna
- D. glenoid cavity and pectoral girdle

**Answer: A**

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73. Which of the following is a cartilaginous joint?

- A. Suture
- B. Elbow joint
- C. Synovial joint
- D. Pubic, symphysis

**Answer: D**



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74. The joint where synovial cavity is absent

- A. carpals
- B. finger and toes in males
- C. pubic symphysis in females

D. femur and pelvis in females

**Answer: C**



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**75.** What is the joint between sternum and ribs in humans?

A. Fibrous joint

B. gliding joint

C. angular joint

D. cartilaginous joint

**Answer: D**



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**76.** Articular cartilage of synovial joint is

- A. fibrocartilage
- B. elastic cartilage
- C. hyaline cartilage
- D. all of these

**Answer: C**

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**77. Synovial joint occurs between**

- A. pubic bones
- B. centra of two vertebrae
- C. two skull bones
- D. humerus and ulna

**Answer: D**

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78. In locomotion, movement between two structures of which one of the following sets takes part in man?

- A. skull and atlas
- B. Humerus and ulna
- C. Femur and pelvic girdle
- D. Humerus and pectoral girdle

**Answer: C**



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79. Joint between Incus & stapes is : —

- A. hinge joint
- B. gliding joint
- C. pivotal joint

D. ball and socket joint

**Answer: D**



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**80.** Hinge joint is present in our body between

- A. thumb and trapezium
- B. humerus and scapula
- C. humerus and radio-unla
- D. first and second vertebra

**Answer: C**



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**81.** Saddle joint occurs between

A. carpal and first metacarpal

B. femur and pelvic girdle

C. all the vertebrae

D. phalangers

**Answer: A**



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**82.** The articulation of odontoid process of axis and atlas is an exmple of

A. pivot joint

B. synovial joint

C. ball and socket joint

D. none of these

**Answer: A**



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83. Which of the these joint is correctly matched with the type of joint?

- A. Atlas to occipital condyle - Pivot
- B. Tarsals to metatarsals - saddle
- C. Tibia to talus - Hinge
- D. Femur to coxal bone - Ellipsoid

**Answer: C**



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84. An example of gliding joint is

- A. femur and fibiofibula
- B. humerus and glenoid cavity
- C. zygapophyses of adjacent vertebrae

D. occipital condyle and atlas

**Answer: C**



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**85.** Which of the following permits movement of articulating bones around two axes?

A. Hinge joint

B. Ball & socket joint

C. Sutures

D. Ellipsoid joint

**Answer: D**



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86. In old age, stiffness of joints is due to the

- A. higher viscosity of synovial fluid
- B. decrease in synovial fluid
- C. increase in synovial fluid
- D. none of above

**Answer: B**



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87. Gout is a disease that affects the joints and leads to arthritis. It is associated with an abnormality of

- A. fat metabolism
- B. purine metabolism
- C. protein metabolism
- D. pyrimidine metabolism

**Answer: B**



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**88.** Study of following

- a. The accumulation of pyruvic acid in the muscle cause fatigue
- B. ATP is resynthesized in the muscle by the phosphorylation of ADP by a phosphagen.
- C. Cori and Cori cycle occurs in the liver
- D. The phosphagen in the vertebrate muscle is arginine phosphate.

The correct set of answers for muscle contraction is

- A. A and D
- B. B and D
- C. C and D
- D. B and C

**Answer: D**



89. It is an outcome of irregularities in metabolism of nitrogenous waste

- A. Osteoporosis
- B. Osteoarthritis
- C. Gouty arthritis
- D. Rheumatoid arthritis

**Answer: C**

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90. Upon stimulation of skeletal muscles, calcium is immediately made available for binding to troponin from

- A. bone
- B. blood



C. lymph

D. sarcoplasmic reticulum

**Answer: D**



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**91.** This facial bone is unpaired

A. vomer

B. nasal

C. lacrimal

D. palatine

**Answer: A**



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92. The longest bone of the human body is

- A. tibia
- B. incus
- C. femur
- D. vertebra

**Answer: C**



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93. Skeletal muscles are controlled by

- A. autonomic nerves
- B. somatic nerves
- C. sympathetic nerves
- D. parasympathetic nerves

**Answer: B**



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**94.** Which one of the following is wrongly matched?

- A. Red muscle - Myoglobin
- B. Troponin - Protein of mysosin filament
- C. Tendon - Connective tissue
- D. Myosin - contractile protein

**Answer: B**



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**95.** The generation of excitation-contraction coupling involves all the following events except

- A. hydrolysis of ATP to ADP
- B. Conformational change in troponin
- C. releases of calcium from troponin
- D. formation of cross linkages between actin and myosin

**Answer: C**

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**96.** In human beings the cranium is formed by

- A. ten bones of which two are paired
- B. eight bones of which two are paired
- C. fourteen bones of which six are paired
- D. eight bones of which three are paired

**Answer: B**

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97. The number of occipital condyles in man is/are

- A. one
- B. two
- C. three
- D. four

**Answer: B**



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98. Match the following and choose the correct option

Types of synovial joints	Bones involved
Ball and socket	1. Carpal and metacarpal of thumb
Hinge	2. Atlas and axis
Pivot	3. Frontal and parietal
Saddle	4. Knee
	5. Humerus and pectoral girdle

A. A = 1, B = 3, C = 4, D = 5

B.  $A = 5, B = 4, C = 2, D = 1$

C.  $A = 5, B = 4, C = 3, D = 1$

D.  $A = 1, B = 2, C = 5, D = 4$

**Answer: B**



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**99.** The ellipsoidal joint is found in

A. hip

B. knee

C. shoulder

D. radius and scaphoid of hand

**Answer: D**



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**100.** Which of the following statements about the mechanism of muscle contraction are correct ?

(i) Acetylcholine is released when the neural signal reaches the motor end plate.

Muscle contraction is initiated by a signal sent by CNS via sensory neuron.

(iii) During muscle contraction, isotropic band gets elongated (iv) Repeated activation of the muscles can lead to lactic acid accumulation.



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**101.** Actin binding sites are located over

A. troponin

B. tropomyosin

C. meromyosin

D. both troponin and tropomyosin

**Answer: C**



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**102.** The scapula is a large triangular flat bone situated in the dorsal part of the thorax between

- A. second and fifth ribs
- B. third and sixth ribs
- C. third and eighth ribs
- D. second and seventh ribs

**Answer: D**



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**103.** The coxal of the pelvic girdle is formed by the fusion of



- A. ilium and scapula
- B. clavicle and pubis
- C. scapula and clavicle
- D. ilium, ischium and pubis

**Answer: D**

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**104.** Which one of the followign pairs of substances and function is not correctly matched?

- A. actin : slides past myosin causing contraction
- B. Calcium : Triggers enzymatic action of Myosin
- C. ATPase : Enzyme that splits ATP
- D. ATP : Supplies energy for breaking Actomyosin

**Answer: B**

**105.** Read the following statements

(i) In cardiac muscle fibres sarcoplasmic reticulum is poorly formed

(ii) Blood supply is scanty in case of smooth muscle fibres

(iii) Tropomyosin occurs in actin filaments in the form of complexes which are arranged over actin fibres and represent sites where myosin binds to actin.

(iv) Salts of citrate and oxalates act as anticoagulants as they precipitate  $Ca^{2+}$

Select the correct statements

A. (i),(ii),(iii)

B. (i),(iii),(iv)

C. (ii),(iii),(iv)

D. (i),(ii),(iv)

**Answer: D**



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**106.** Select the wrong match

- A. Ring of trachea - Hyaline cartilage and bronchi
- B. Nasal septum - White fibrous
- C. Public symphysis - White fibrous cartilage
- D. Eustachian tube - Elastic cartilage

**Answer: B**



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**107.** Read the following statements

- (i) In adults most of the RBCs are produced in the marrow of long bones.
- (ii) In camel and Llama RBCs are oval.
- (iii) Foetal RBCs are nucleated and contain a different form of haemoglobin as compared the adults.

(iv) Lymphocytes are 6- 70% of the total leucocytic count

Select the correct statements

A. (i),(ii),(iii)

B. (i) and (ii)

C. (ii) and (iii)

D. (ii),(iii) and (iv)

**Answer: C**



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**108.** Go through the following statements

During muscle contraction, the width of A-band remains constant while I-band shortens.

During muscle contraction, the  $Ca^{2+}$  released from the SR bind to the troponin component of thin filament

The process of muscle contraction is faster in smooth muscle as they have a well developed sarcoplasmic reticulum.

The red muscle fibres have abundant mitochondria, low glycogen and poorly formed sarcoplasmic reticulum.

- A. (i),(ii), and (iii)
- B. (i),(ii) and (iv)
- C. (i),(iii) and (iv)
- D. All are correct

**Answer: B**



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**109.** Go through the following matches

(i) Gluteal tuberosity - Tibia

Medial malleolus - Fibula

(iii) Greater Trochanter - Femur

Which of these are correct?

- A. (i) only

B. (iii) only

C. (i) and (ii)

D. (ii) and (iii)

**Answer: B**



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**110.** Go through the following matches

(i) Pisiform - Bone in distal row of wrist

(ii) Lateral and - Femur medial condyles

(iii) Ethmoid - Pneumatic bone

Which of these are correct ?

A. (i) and (ii)

B. (ii) and (iii)

C. only (iii)

D. All are correct

**Answer: B**



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**111.** Go through the following statement

- (i) Thoracic vertebrae have got foramina transversaria in their transverse processes.
- (ii) Atlas permits up and down or nodding movement of skull on it.
- (iii) The body of human vertebra is amphiplatyan in nature.
- (iv) Without exception, all mammals have seven cervical vertebrae

Which of these are correct?

- A. (i),(ii), and (iii)
- B. (ii) and (iii)
- C. (ii),(iii),(iv)
- D. (i),(iii),& (iv)

**Answer: B**





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**112.** Go through the following matches

- (i) wrist joint - anuglar joint
- (ii) Interphalangeal joint - Angular joint
- (iii) Metacarpophalangeal - Hinge joint
- (iv) Carpal bones - Gliding joint

Which of these are correct?

- A. (i),(ii) and (iii)
- B. (ii), (iii) and (iv)
- C. (i) and (iv)
- D. (i), (iii) and (iv)

**Answer: C**



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**113.** Select the wrong match

- A. Epiphyseal plate - Hyaline fibrous cartilage
- B. Intervertebral disc - White fibrous cartilage
- C. Pinnia - Elastic cartilage
- D. Xiphisternum - Elastic cartilage

**Answer: D**



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**114.** Read the following statements

- (i) first seven pairs of ribs are called true ribs or vertebrochondral ribs.
- (ii) A rib has two articulation surfaces on its dorsal end and is hence called bicephalic.
- (iii) Pelvic girdle consists of two coxal bones
- (iv) Xiphoid process forms the lowermost and manubrium forms the

uppermost part of the sternum.

Which of these are correct?

A. (i),(ii) and (iii)

B. (ii),(iii) & (iv)

C. (i),(iii) and (iv)

D. All are correct

**Answer: B**



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**115.** Go through the following matches

(i) Gluteus maximus - Chief extensor of knee

(ii) Hamstrings - Flexor of knee

(iii) Serratus anterior - Boxer's muscle

(iv) Deltoid - Flexor's shoulder joint

Which of these are correct?

A. (i) and (iii)

B. (ii) and (iii)

C. (i),(iii) and (iv)

D. (ii),(iii) (iv)

**Answer: B**



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**116.** Given below are the following statements regarding actin

(i) Is the main constituent of light band

(ii) Forms the Anisotropic band on its own

(iii) Are the thicker filaments

(iv) A part of the H zone.

Choose the correct option

A. (i),(ii) and (iii) are true

B. (i) and (iii) are true

C. (ii),(iii) and (iv) are false

D. All are false

**Answer: C**



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**117.** Read the following statements regarding muscle contraction

(i) One ATP utilised for making and breaking of the cross bridge.

(ii) The sarcomere lies between 2 Z-lines

(iii) Troponin blocks the active sites in resting stage

(iv)  $Ca^{++}$  ions help in unmasking active sites on HMM

Choose the correct option

A. Only (i) is false

B. Only (ii) and (iii) are true

C. Only (iv) is false

D. Only (ii) is false

**Answer: B**



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**118.** Match list-I and list-II, select the correct answer using the codes given below the lists.

List-I (Constrictile proteins)    List-II (Functions)

A. Myosin

1. Stabilizes F-actin

B. Actin

2. Calcium binding

C. Troponin

3. Sliding

D. Tropomyosin

4. ATPase activity

A. 3, 4, 1, 2

B. 4, 3, 2, 1

C. 4, 3, 1, 2

D. 3, 4, 2, 1

**Answer: B**



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**119.** Which of the following statements is consistent with smooth muscle architecture?

- A. The presence of deep, invaginating. T-tubules
- B. Actin and myosin organized into visible striations
- C. Multicellular units of muscle tissue that function voluntarily
- D. Multiunit muscle cells that are active during GI peristalsis

**Answer: D**



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**120.** Red muscle fibres are heavily dependent on which of the following in order to function properly?

- (i) Oxygen concentration
- (ii) ATP levels
- (iii) Intracellular glucose storage

A. I and II only

B. II and III only

C. III only

D. I, II and III

**Answer: A**



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**121.** Go through the following statements

- (i) Sigmoid notch is present between condyloid process and coronoid process of mandible
- (ii) The thoracic vertebrae are the strongest and the largest of all the vertebrae
- (iii) The atlas permits up and down or nodding movement of skull on it.
- (iv) The body of atlas bears an odontoid process.

Which of these are correct?

A. (i),(ii) & (iii)

B. (i),(iii) & (iv)

C. (i) and (iii)

D. (iii) and (iv)

**Answer: C**



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**122.** Read the following matches carefully

(i) Greater sciatic notch - Innominate bone

(ii) Obturator foramen - Innominate bone

(iii) Acromion process - Humerus

Which of these are correct?

A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iii)

D. All are correct

**Answer: A**





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**123.** Read the following matches carefully

- (i) Olecranon fossa - Ulna
- (ii) Greater tuberosity - Humerus
- (iii) Foramen magnum - Skull

Which of these are correct?

- A. (i) and (ii)
- B. (ii) and (iii)
- C. (i) and (iii)
- D. All are correct

**Answer: B**



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**124.** Go through the following matches

- (i) Acetabulum - Hip bone
- (ii) Ischial tuberosity - Hip bone
- (iii) Maxilla - Cheek bone

Which of these are correct?

- A. (i) and (ii)
- B. (ii) and (iii)
- C. (i) and (iii)
- D. All are correct

**Answer: A**



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**125.** Go through the following matches

- (i) Trochlear notch - Ulna
- (ii) Capitulum - Radius

(iii) Symphysis pubis - Hip bone

Which of these are correct?

A. (i) and (ii)

B. (i) and (iii)

C. (ii) and (iii)

D. All are correct

**Answer: B**



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**126.** Go through the following matches

(i) Calcaneum - Largest bone of the foot

(ii) Intervertebral - Cartilaginous joint discs

(iii) Lateral malleolus - Femur

Which of these are correct?

A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iii)

D. All are correct

**Answer: A**



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**127.** Go through the following matches

(i) Pisiform - Sesamoid bone

(ii) Symphysis pubis - Cartilaginous joint

(iii) Cuboid - Tarsal bone

Which of these are correct?

A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iii)

D. All are correct

**Answer: D**



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**128.** Go through the following matches

- (i) Atlanto occipital joint - Angular joint
- (ii) Incus and stapes - Ball and socket
- (iii) Talus - Bone of distal row of wrist

Which of these are correct?

- A. (i) and (ii)
- B. (ii) and (iii)
- C. (ii) only
- D. (i) only

**Answer: A**



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**129.** The myosin myofilament can be cleaved into a head and a tail piece.

All of the following are accurate in describing the position of myosin in a sarcomere except

- (i) A-band is the length of a myosin myofilaments
- (ii) A-band contains thin and thick myofilaments
- (iii) A-band does not include actin-binding sites

A. I and II only

B. II and III only

C. III only

D. I, II and III

**Answer: C**



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**130.** Read the following matches

- (i) Glenoid cavity - Scapula

(ii) Bicipital tuberosity - humerus

(iii) Styloid Process - Ulna

Which of these are correct?

A. (i) and (ii)

B. (i) & (iii)

C. (ii) and (iii)

D. All are correct

**Answer: B**



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**131.** Match the following and mark the correct option

Column I

Column II

A. Fast muscle fibres    *i.* Myoglobin

B. Slow muscle fibres    *ii.* Lactic acid

C. Actin filament        *iii.* Contractile unit

D. Sarcomere              *iv.* I-band

A. A-(i),B-(ii),C-(iv),D-(iii)

B. A-(ii),B-(i),C-(iii),D-(iv)

C. A-(ii),B-(i),C-(iv),D-(iii)

D. A-(iii),B-(ii),C-(iv),D-(i)

**Answer: C**



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**132.** Which one of the following is showing the correct sequential order of vertebrae in the vertebral column of human beings ?

A. Cervical-lumbar-thoracic-lumber-occygeal

B. Cervical-thoracic-sacral-lumbar-occygeal

C. Cervial-sacral-thoracic-lumbar-coccygeal

D. Cervical-thoracic-lumar-sacral-cocygeal

**Answer: D**



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**133.** Which one of the following option is incorrect ?

- A. Hingejoint - between Humerus and pectoral girdle
- B. Pivot joint - between atlas and axis
- C. Gliding joint - between the carpals
- D. Saddle joint - between carpal and metacarpals or thumb

**Answer: A**



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**134.** Which one of the following statements is incorrect?

- A. Heart muscles are striated and involuntary
- B. The muscles of hands and legs are striated and voluntary
- C. The muscles located in the inner walls of alimentary canal are striated and involuntary

D. Muscles located in the reproductive tracts are unstriated and involuntary

**Answer: C**



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**135.** Which one of the following statements is true

- A. Head of humerus bone articulates with acetabulum of pectoral girdle/
- B. Head of humerus bone articulates with glenoid cavity of pectoral girdle
- C. Head of humerus bone articulates with a cavity called acetabulum of pelvic girdle.
- D. Head of humerus bone articulates with a glenoid cavity of pelvic girdle.

**Answer: B**



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**136.** Muscles with characteristic striations and involuntary are

- A. Muscle in the wall of alimentary canal
- B. Muscles of the heart
- C. Muscles assisting locomotion
- D. Muscles of the eye lids

**Answer: B**



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137. Match the followings and mark the correct option

Column I

Column II

Sternum

*i.* Synovial fluid

Glenoid Cavity

*ii.* Vertebrae

Freely movable joint

*iii.* Pectoral girdle

Cartilagenous joint

*iv.* Flat bones

A. A-(ii),B-(i),C-(iii),D-(iv)

B. A-(iv),B-(iii),C-(i),D-(ii)

C. A-(ii),B-(i),C-(iv),D-(iii)

D. A-(iv),B-(i),C-(ii),D-(iv)

**Answer: B**



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138. Which one of the following is a sesamoid bone

A. Pelvis

B. patella

C. pterygoid

D. Pectoral girdle

**Answer: B**



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**139.** Assertion. Inflammation of a skeletal joint may immobilize the movements of the joint.

Reason. Uric acid crystals in the joint cavity and ossification of articular cartilage lead to this.

A. If both Assertion and Reason are true and the Reason is correct explanation of the Assertion, then mark a.

B. If both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion, then mark b.

C. If Assertion is true statement but reason is false, then mark c.

D. If both Assertion and Reason are false statements then mark d.

**Answer: A**



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**140.** A cricket player is fast chasing ball in the field. Which one of the following group of bones is directly contributing in this movement ?

- A. Femur, malleus, tibia, metatarsals
- B. Pelvis, ulna, patella, tarsals
- C. Sternum, femur, tibia, fibula
- D. Tarsals, femur, metatarsals, tibia

**Answer: D**



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**141.** Find out the correct match regarding the structure of muscle fibre

Band	Colour	Filaments
------	--------	-----------

- A. A - band    Dark    Contains only actin
- B. I-band    Light    Contains only actin
- C. A-band    Light    Contains actin and myosin both
- D. I-band    Light    Contains myosin only

**Answer: B**



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**142.** ATPase enzyme needed for muscle contraction is located in

" " Or

The contractile protein of skeletal muscle involving ATPase activity is

- A. myosin
- B. actin
- C. actinin
- D. troponin

**Answer: A**



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**143.** An acromian process is characieristically found in the

- A. Skull of frog
- B. sperm of mammals
- C. pelvic girdle of mammals
- D. pectoral girdle of mammals

**Answer: D**



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**144.** Which of the following pairs is correctly matched ?

- A. Fibrous joint - between phalangers



B. Cartilaginous joint - skull bones

C. Gliding joint - between zygapophyses of the successive vertebrae

D. Hinge joint - between vertebrae

**Answer: C**



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**145.** In human body , which one of the following is anatomically correct ?

A. Collar bones - 3 pairs

B. Salivary glands - 1 pairs

C. Cranial nerves - 10 pairs

D. Floating ribs - 2 pairs

**Answer: D**



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**146.** Which one of the following items gives its correct total number

- A. Cervical vertebrae in human - 8
- B. Floating ribs in human - 4
- C. Amino acids found in proteins - 16
- D. Types of diabetes - 3

**Answer: B**



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**147.** Which one of the following is correct pairing of a body part and the kind of muscle tissue that moves it

- A. Abdominal wall Smooth muscle
- B. Iris Involuntary smooth muscle
- C. Heart wall Involuntary
- D. Biceps of upper arm Smooth muscle fibres

**Answer: B**



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**148.** Elbow joint is an example of

- A. gliding joint
- B. ball and socket joint
- C. Pivot joint
- D. Hinge joint

**Answer: D**



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**149.** Which one of the is the correct matching of three items and their grouping category ?

A. Actin, myosin, rhodopsin - Muscle

B. Cytosine, uracil, thiamine - Pyrimidines

C. Malleus, incus, cochlea - Ear ossicles

D. Ilium, ischium, pubis - Coxal bones of pelvic girdle

**Answer: D**



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**150.** Select the correct statement regarding the specific disorder of muscular or skeletal system.

A. Osteoporosis - decrease in bone mass and higher chances of fractures with advancing age

B. Myasthenia gravis - Auto immune disorder which inhibits sliding of myosin filaments

C. Gout - inflammation of joints due to extra deposition of calcium

D. Muscular dystrophy - age related shortening of muscles

**Answer: A**



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**151.** Which one of the following pairs of structures is correctly matched with their correct description

A. Tibia and fibula - Both form parts knee joint

B. Cartilage and cornea - NO blood supply but do require oxygen for respiratory need

C. Shoulder joint - Ball and socket type of joint

D. Premolar and molars - 20 in all and 3 rooted

**Answer: B**



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152. Which one of the following is correct description of a certain part of a normal human skeleton ?

- A. Parietal bone and the temporal bone of the skull are joined by fibrous joint
- B. First vertebra is axis which articulates with the occipital condyles
- C. The 9th and 10th pairs of ribs are called the following ribs
- D. Glenoid cavity is a depression to which the thigh bone articulates

**Answer: A**



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153. The types of muscles present in our :

- A. Heart are involuntary and unstriated smooth muscles
- B. Intestine are striated and involuntary
- C. Thigh are striated and voluntary

D. Upper arm are smooth muscle fibres fusiform in shape

**Answer: C**



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**154.** Three of the following pairs of the human skeletal parts are correctly matched with their respective inclusive skeletal category and one pair is not matched. Identify the non-matching pair

- A. Sternum and Ribs Axial skeletal
- B. Clavical & Glenoid cavity Pelvic girdle
- C. Humerus and ulna Appendicular skeleton
- D. Malleus and stapes Ear ossicles

**Answer: B**



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155. Which one of the following pairs of chemical substance, is correctly categorized ?

- A. Troponin and myosin - Complex proteins in striated muscles
- B. Secretin and rhodopsin - Polypeptide hormones
- C. Calcitonin and thymosin - Thyroid hormones
- D. Pepsin and prolactin - Two digestive enzymes secreted in stomach

**Answer: A**

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156. Acetabulum is associated with

- A. Pelvic girdle
- B. pectoral girdle
- C. cranium
- D. vertebrae



**Answer: A**



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**157.** Function of T-tubules in muscles is to

- A. secrete acetylcholine
- B. conduct impulses
- C. support and muscle fibres
- D. store calcium

**Answer: B**



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**158.** The wall of the internal organs such as blood vessels, stomach and intestine contains which type of muscle tissue?

- A. smooth muscle fibre
- B. cardiac muscle fibre
- C. skeletal muscle fibre
- D. Neural tissue

**Answer: A**



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**159.** Inflammation of joints due to accumulation of uric acid crystals is called as

- A. gout
- B. Rheumatoid Arthritis
- C. Osteoarthritis
- D. Rickets

**Answer: A**

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**160.** Which type of joint has a fluid filled cavity for significant role in locomotion ?

- A. Fibrous joints
- B. Cartilagenous joints
- C. Synovial joints
- D. All the above

**Answer: C**

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**161.** Joint between the carpals is called

- A. Saddle joint
- B. gliding joint

C. ball and socket joint

D. Hinge joint

**Answer: B**



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**162.** Major protein in thick filaments of skeletal muscle fibre in

A. Myosin

B. Actin

C. tropomyosin

D. Troponin

**Answer: A**



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**163.** The number of cervical vertebrae in mammals including human beings are

- A. 9
- B. 8
- C. 7
- D. 10

**Answer: C**



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**164.** In resting stage, binding sites for myosin on actin filaments are masked by

- A. Troponin
- B. Light meromyosin
- C. Heavy meromyosin

D. Calcium ions

**Answer: A**



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**165.** How many lumbar vertebrae are present in the vertebral column of a human?

A. 26

B. 7

C. 12

D. 5

**Answer: D**



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**166.** ATPase activity in muscle fibers is associated with

- A. light meromyosin
- B. troponin
- C. head of heavy meromyosin
- D. short arm of heavy meromyosin

**Answer: C**

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**167.** The example of pivot joint is

- A. hip joints
- B. metacarpophalangeal joints
- C. ankle joints
- D. radioulnar joints

**Answer: D**

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**168.** The major function of the intervertebral discs is to

- A. absorb shock
- B. string the vertebrae together
- C. prevent injuries
- D. prevent hyperextension

**Answer: A**



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**169.** Clavicle articulates with . . . . . Of scapula

- A. acromion process
- B. glenoid process
- C. acetabulum cavity



D. ball and socket joint

**Answer: A**



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170. The function of  $Na^+$  and  $k^+$  pump is to

A.  $Na^+$  out and  $Cl^-$  in

B.  $Cl^-$  out and  $Na^+$  in

C.  $Na^+$  in and  $k^+$  out

D.  $Na^+$  out and  $K^+$  in

**Answer: D**



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171. Energy is stored in the liver and muscles in the form of

" " Or

In the muscles carbohydrates are stored in the form of

A. carbohydrate

B. Fat

C. protein

D. glycogen

**Answer: D**



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172. Which is common to kidney and skeleton in mammals

A. cortex

B. pelvis

C. medulla

D. radius

**Answer: B**



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**173.** Axis vertebra is identified by

A. signoid notch

B. odontoid process

C. deltoid

D. centrum

**Answer: B**



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174. Progressive degeneration of skeletal muscle, mostly due to genetic disorder occurs in

- A. Myasthenia gravis
- B. muscular dystrophy
- C. tetany
- D. arthritis

**Answer: B**



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175. In human beings cranium is formed by

- A. eight bones by which two are paired
- B. fourteen bones of which six are paired
- C. ten bones of which two are paired
- D. twelve bones of which four are paired

**Answer: A**



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**176.** The matrix of bone and cartilage can be distinguished by the presence of

- A. Haversian canal
- B. lacuna
- C. chromatophores
- D. adipose cells

**Answer: A**



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**177.** The type of muscle present in the alimentary canal is

A. smooth muscle fibre

B. striped muscle fibre

C. cardiac muscle fibre

D. both (1) and (2)

**Answer: D**



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**178.** Which one has oxygen storing capacity

A. myoglobin

B. actin

C. myosin

D. fibrin

**Answer: A**



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**179.** Osteomalacia is a deficiency disease of

- A. infants due to protein energy malnutrition
- B. adults due to protein energy malnutrition
- C. adults due to vitamin D deficiency
- D. infants due to vitamin K deficiency

**Answer: C**



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**180.** The ball and socket joint is found in

- A. skull
- B. shoulder
- C. knee

D. atlas and axis

**Answer: B**

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**181.** Select the correct statement with respect to locomotion in humans

- A. The vertebral column has 10 thoracic vertebrae
- B. The joint between adjacent vertebrae is a fibrous joint
- C. A decreased level of progesterone causes osteoporosis in old people
- D. Accumulation of uric acid crystals in joints causes their inflammation.

**Answer: D**

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**182.** The H-zone in the skeletal muscle fibre is due to

- A. the central gap between actin filaments extending through myosin filaments in the A-band
- B. extension of myosin filaments in the central portion of the A - band
- C. the absence of myofibrils in the central portion of A-band
- D. the central gap between myosin filaments in the A-band

**Answer: A**



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**183.** The characteristics and an example of a symbol joint in humans is

Characterstics	Example
(a) Lymph filled between two bones, limited movement	Gliding joint
(b) Fluid cartilage between two bones, limited movements	Knee joint
(c) Fluid filled between two joints, provides cushion	Skull bones
(d) Fluid filled synovial cavity between two bones	Joint between

- A. fluid filled synovial cavity between two bones joint between atlas and axis
- B. lymph filled between two bones, limited movement gliding joint between carpals
- C. fluid, cartilage between two bones, limited knee joint
- D. fluid filled between two joint, provides cushion skull bones

**Answer: A**



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**184.** Select the correct matching of the type of the joint with the example in human skeletal system

- A. Gliding joint - Between carpals
- B. Cartilaginous joint - Between frontal and parietal
- C. Pivot joint - between third and fourth cervical vertebrae

D. Hinge joint - between Humerus and pectoral girdle

**Answer: A**



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**185.** Stimulation of muscle fibre by a motor neuron occurs at

- A. The sarcoplasmic reticulum
- B. The neuromuscular junction
- C. The transverse tubules
- D. The myofibril

**Answer: B**



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**186.** Sliding filament theory can be best explained as

- A. Actin and Myosin filaments shorten and slide pass each other
- B. Actin and Myosin filaments do not shorten but rather slide pass each other
- C. When myofilaments slide pass each other, myosin filaments shorten while Actin filaments do not shorten
- D. When myofilaments slide pass each other actin filament do not shorten

**Answer: B**



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**187.** Glenoid cavity articulates

- A. scapula with acromion
- B. clavicle with scapula
- C. humerus with scapula

D. clavicle with acromion

**Answer: C**



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**188.** Which of the following joints would allow no movement

A. Fibrous joint

B. Cartilaginous joint

C. Synovial joint

D. Ball and socket joint

**Answer: A**



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**189.** Which of the following is not a function of the skeletal system

A. Production of erythrocytes

B. Storage of minerals

C. Production of body heat

D. Locomotion

**Answer: C**



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**190.** Lack of relaxation between successive stimuli in striated muscle contraction is known as

A. Fatigue

B. Tetanus

C. Tonus

D. Spasm

**Answer: B**

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**191.** Smooth muscles are

- A. involuntary, fusiform, non-striated
- B. voluntary, multinucleate, cylindrical
- C. involuntary, cylindrical, striated
- D. voluntary, spindle-shaped, uniunclate

**Answer: A**

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**192.** Name the ion responsible for masking active sites for myosin for cross-bridge activity during muscle contraction

- A. calicum
- B. Magnesium

C. Sodium

D. Potassium

**Answer: A**



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**193.** Osteoporosis, an age related disease of skeletal system, may occur due to

A. immune disorder affecting neuromuscular junction leading to fatigue.

B. high concentration of  $Ca^{++}$  and  $Na^+$

C. decreased level of estrogen

D. accumulation of uric acid leading to inflammation of joints

**Answer: C**



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**194.** Out of 'X' pairs of ribs in humans only 'Y' pairs are true ribs. Select the option that correctly represents values of X and Y and provides their explanation

- A.  $X = 12$ ,  $Y = 17$  True ribs are attached dorsally to vertebral column and ventrally to the sternum.
- B.  $X = 12$ ,  $Y = 15$  True ribs are attached dorsally to vertebral column and sternum on the two ends.
- C.  $X = 24$ ,  $Y = 17$  True ribs are dorsally attached to vertebral column but are free on ventral side.
- D.  $X = 24$ ,  $Y = 12$  True ribs are dorsally attached to vertebral column but are free on ventral side

**Answer: A**



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**195.** The pivot joint between atlas and axis is a type of

- A. fibrous joint
- B. cartilaginous joint
- C. synovial joint
- D. saddle joint

**Answer: C**



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**196.** Calcium is important in skeletal muscle contraction because it

- A. prevents the formation of bonds between the myosin cross bridges and the actin filaments
- B. Detaches the myosin head from the actin filament
- C. activates the myosin ATPase by binding to it.

D. binds to troponin to remove the masking of active sites on actin for myosin

**Answer: D**



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