



## BIOLOGY

### BOOKS - A2Z BIOLOGY (HINGLISH)

### LOCOMOTION AND MOVEMENT

#### Section A Topicwise Questions Topic 1 Types Of Movement And Muscle

1. Read the following statements and find out the incorrect statements.
  - (a) Movement is one of the significant features of living beings-both plants and animals.
  - b. Streaming of protoplasm in the unicellular organisms like Amoeba is a simple form of movement.
  - c. Movement of cilia, flagella and tentacles are shown by Euglena, Paramecium and Hydra respectively.
  - d. Human beings can move limbs jaws, eyelids, tongue and ear pinna etc.
  - e. Locomotion is generally for search of food, shelter, mate, suitable

breeding grounds and favourable climatic conditions or to escape from enemy/predators.

- A. a and b
- B. b and c
- C. c and d
- D. d and e

**Answer: C**



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2. Some voluntary movements those result in a change of place or location are called

- A. Translocation
- B. Transformation
- C. Transmutation

D. Locomotion

**Answer: D**



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**3. Find out the correct statement.**

A. All locomotion are movements but all movements are not locomotion.

B. All movements are locomotion but all locomotion are not movements.

C. All locomotion are movements and all movements are locomotion.

D. All locomotion are not movements and all movements are not locomotion

**Answer: A**



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4. Methods of locomotion performed by animals vary with their

- a. Habits
- b. Habitats
- c. Level of organisation
- (d).Demand of the situation

A. a, b and c

B. b, c and d

C. b and c

D. b and d

**Answer: D**



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5. Amoeboid movement in macrophages and WBCs are effected by

A. Cilia

B. Flagella

C. Pseudocoel

D. Pseudopodia

**Answer: D**



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**6. Match the columns I and II, and choose the correct combination from the options given.**

Column I

Column II

(a) Amoeboid movement

(1) Trachea

(b) Ciliary movement

(2) Spermatozoa

(c) Flagellar movement

(3) Tongue

(d) Muscular movement

(4) Macrophages

A. a-2, b-3, c-1, d-4

B. a-4, b-2, c-1, d-3

C. a-3, b-1, c-2, d-4

D. a-4,b-1,c-2,d-3

**Answer: D**



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7. Pseudopodia is formed by

- A. Shrinkage of protoplast
- B. Streaming of protoplast
- C. Change in osmotic pressure
- D. Streaming of protoplasm

**Answer: D**



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8. Passage of ova through female reproductive tract is facilitated by

- A. Ciliary movement
- B. Amoeboid movement
- C. Muscular movement
- D. All of the above

**Answer: A**

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**9. Fill in the blanks:**

(a). The coordinated movement of l in the ..2... helps us removing dust particle and some of the foreign substance inhaled along with the atmospheric air

(b) Locomotion requires a perfect coordinated activity of ....3..., skeletal and ..4...systems.

A. l-cilia, 2-trachea, 3--muscular, 4--neural

B. l-cilia, 2-bronchioles, 3-neural, 4--endocrine

C. 1-flagella, 2-fallopian tube, 3-endocrine, 4-muscular

D. 1-cilia, 2-trachea, 3-muscular, 4-endocrine

**Answer: A**



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**10. Macrophages and leucocytes exhibit**

A. Ciliary movement

B. Flagellar movement

C. Amoeboid movement

D. Gliding movement

**Answer: C**



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11. Which of the following are locomotory movements?

a. Walking b. Running c. Climbing d. Flying e. Swimming

A. a,b and d

B. b,c and d

C. a, b, d and e

D. a, b, c, d and e

**Answer: D**



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12. 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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13. Muscles with characteristic striations and involuntary are

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

**Answer: B**



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14. Origin of muscle is

- A. Ectodermal
- B. Mesodermal
- C. Endodermal
- D. Any of the above

**Answer: B**



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15. Read the following statements and find out the incorrect statement(s).

- (a) About 45 50 percent of the body weight of a human adult is contributed by muscles.
- (b). Muscles have special properties like excitability, contractility, extensibility and elasticity.
- (c) Based on their location, three types of muscles are identified: skeletal,

smooth and cardiac

(d). Based on appearance, cardiac muscles are striated. They are involuntary in nature as the nervous system does not control their activity directly.

A. b and c

B. a and c

C. Only a

D. None of the above

**Answer: B**



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**16.** Which of the following muscles are primarily involved in locomotory actions and changes of body postures?

A. Skeletal muscles

B. Visceral muscles

C. Cardiac muscles

D. Both A and B

**Answer: A**



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17. Which of the following muscles assist in the transportation of food through the digestive tract and gametes through the genital tract?

A. Skeletal muscles

B. Cardiac muscles

C. Visceral muscles

D. Both A and B

**Answer: B**



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18. Statement : Locomotory structures need not be different from those affecting other types of movements.

Which of the following condition correctly defines the above statement?

- A. Humans use limbs for changes in body postures and locomotion as well.
- B. Hydra can use its tentacles for capturing of its prey and also use them for locomotion
- C. In Paramecium, cilia helps in the movement of food through cytopharynx and in locomotion as well.
- D. All of the above

**Answer: D**



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19. Match the columns I and II, and choose the correct combination from the options given.

Column I

Column II

- |                        |                 |
|------------------------|-----------------|
| (a) Amoeboid movement  | (1) Paramoecium |
| (b) Flagellar movement | (2) Amoeba      |
| (c) Muscular movement  | (3) Euglena     |
| (d) Ciliary movement   | (4) Eyelids     |

A. a-2, b-1, c-4, d-3

B. a-4, b-3, c-2, d-1

C. a-2, b-3, c-4, d-1

D. a-3, b-4, c-2, d-1

**Answer: C**



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**20.** The activities of the visceral muscles are not under the voluntary control of the nervous system and are therefore known as

A. Non-striated muscles

B. Involuntary muscles

C. Smooth muscles

D. All of the above

**Answer: C**



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**21.** Read the following statements and find out the incorrect statement

- A. Skeletal muscles are closely associated with the skeletal components of the body.
- B. Visceral muscles are located in the inner wall of hollow visceral organs of the body like the alimentary canal, reproductive tract, etc.
- C. Skeletal muscles have a striped appearance under the microscope and hence are called striated muscles. .
- D. Each organised skeletal muscle in human body is made of a number of muscle bundles or fascxa.



**Answer: D**



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**22.** Which of the following cytoskeletal elements involved in amoeboid movement?

- A. Microfilaments
- B. Microtubules
- C. Myofibrils
- D. B and C

**Answer: A**



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

- A. Smooth muscle fibres
- B. Striped muscle fibres
- C. Cardiac muscle fibres
- D. Both A and B

**Answer: A**

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**24.** Which of the following type of movements are seen in human body?

a. Amoeboid b. Ciliary c. Flagellar d. Muscular

- A. a, b and c
- B. a, b and d
- C. a, c and d
- D. a, b, c and d

**Answer: B**

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25. Total number of muscles in human body are

A. 439

B. 639

C. 306

D. 206

**Answer: B**

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26. ATPase enzyme needed for muscle contraction is located in

" " Or

The contractile protein of skeletal muscle involving ATPase activity is

A. Actinin

B. Troponin

C. Myosin

D. Actin

**Answer: C**



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27. Muscle bundles or fascicles held together by a common collagenous tissue layer called

A. Motor end plate

B. Motor unit

C. Fascia

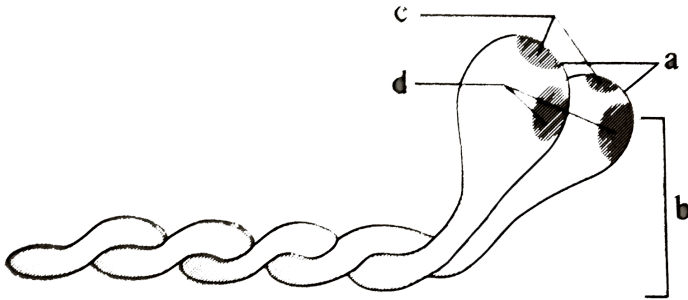
D. Neuromuscular junction

**Answer: C**



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28. Recognise the figure and find out the correct matching.



- A. a HMM. b-LMM, c ATP binding sites, dmyosin binding sites
- B. a head. b-cross bridge, cactin binding sites, , d--ATP binding sites
- C. a head. b~cross arm. C-ATP binding sites. d.actin binding sites
- D. a head. b~cross arm. c actin binding sites, dATP binding sites

**Answer: D**



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29. Anatomical unit of the skeletal muscle is

- A. Muscle fibre
- B. Sarcomere
- C. Muscle bundle
- D. Sarcolemma

**Answer: A**

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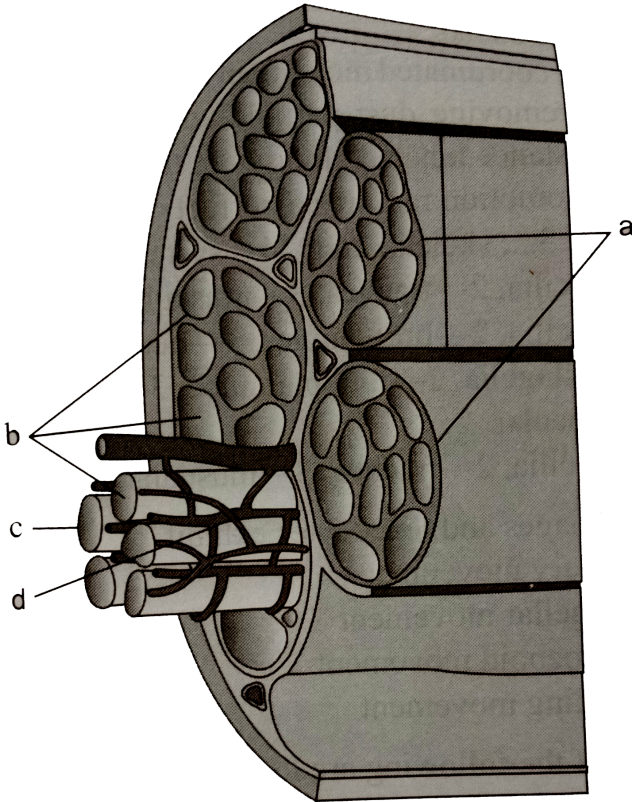
**30.** Which of the following is the functional unit of muscle contraction?

- A. Muscle fibre
- B. Muscle bundle
- C. Sarcomere
- D. Sarcolemma

**Answer: C**

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31. Recognise the figure and find out the correct matching.



A. a-muscle fibre, b-muscle cell, c-fascicle, d-muscle bundle

B. a-fascicle, b-muscle fibre, c-sarcolemma, d-blood capillary

C. a-muscle bundle, b-muscle cell, c-sarcolemma, d-blood capillary

D. Both B and C

**Answer: D**



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**32.** A characteristic feature of the muscle fibre is the presence of large number of parallelly arranged filaments in the sarcoplasm called

- A. Microfilaments
- B. Mitrotubules
- C. Myofibrils
- D. Both A and C

**Answer: D**



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**33.** Fill in the blanks.

- a. The light band contains actin and is called I band.



- b. The thick filaments in the .....2 band are held together in the middle of this band by a thin fibrous membrane called .3. line.
- c. In the centre of each '1' band is an elastic fibre called ...4... line which bisects it,
- d. The central portion of the thick filament which is not overlapped by thin filaments is called the ...'5'

- A. 1-Isotropic, 2-'M', 3-'Z', 4-'A', 5-H zone
- B. 1-anisotropic, 2-'I', 3-'M', 4-'Z', 5-sarcomere
- C. 1-'I', 2-'A', 3-'M', 4-'Z', 5- 'H' zone
- D. 1-'A', 3-'M', 4-'Z', 5-sarcomere

**Answer: C**



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**34.** Each sarcomere is formed by

- A. 2 'A' bands and 2 'I' bands

B. 2 'A' bands and 1 'I' band

C. 1 'A' band and 2 'I' bands

D. 1 'A' band and 2 half 'I' bands

**Answer: D**



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**35.** Read the following statements and find out the incorrect statements

a. Each actin (thin) filament is made of two 'G' (Globular) actins helically wound to each other. It is (b). Each 'G' actin is a polymer of monomeric 'F' (Filamentous) actins.

(c). Two filaments of another protein, troponin also run close to the 'F' actin throughout its length

(d). In the resting state a subunit of troponin masks the active binding sites for myosin on the actin filaments.

(e). Each meromyosin has two parts, a globular head with a short arm (HMM) and a tail (LMM).

A. a, b and c

B. b, c and d

C. c, d and e

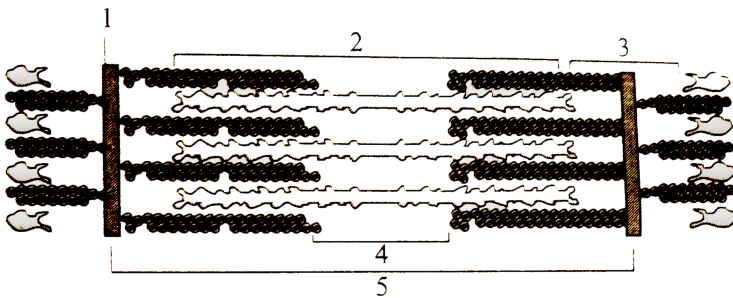
D. a, b and e

Answer: A

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## Section A Topicwise Questions Topic 2 Skeletal Muscle And Structure Of Contractile Proteins

1. Recognise the figure and find out the correct matching.



A. 2-1 band, 3-A band, I-Z line, 4-sarcomere, 5-H zone

B. 3-1 band, 2-A band, I-Z line, 5---sarcomere, 4-H zone

C. 2-1 band, 3--A band, I-Z line, 5-sarcomere, 4-H zone

D. 3-1 band, 2-A band, 1-Z line, 4-sarcomere, 5-H zone

**Answer: B**



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2. The heavy meromyosin (HMM) component, i.e the head and short arm projects outwards at regular distance and angle from each other from the surface of a polymerised myosin filament and is known as

A. Neuromuscular Junction

B. Motor unit

C. Cross bridge

D. Cross arm

**Answer: D**



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**3.** The globular head of HMM is an active ATPase enzyme and has a.

- (a) ATP binding sites
- (b). Actin binding sites
- (c ). Myosin binding sites
- (d). Troponin binding sites
- (e). Calcium binding sites

A. a and b

B. a and c

C. a, c and d

D. a, c and e

**Answer: A**



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4. Which of the following statements are correct regarding muscle proteins ?

- (i) Actin is a thin filament and is made up of two F-actin
- (ii) The complex protein, tropomyosin is distributed at regular intervals on the troponin
- (iii) Myosin is a thick filament which is also a polymerised protein.
- (iv) The globular head of meromyosin consists of light meromyosin (LMM).

A. ii,iii and iv are correct

B. i and iii are correct

C. i, ii and iii are correct

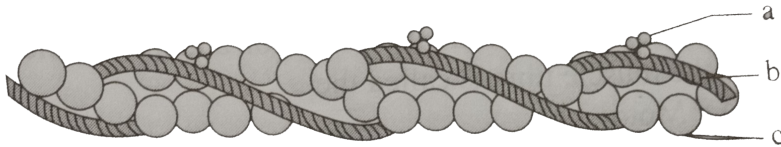
D. i, ii and iv are correct

**Answer: B**



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5. Recognise the figure and find out the correct matching.



- A. a-F actin, b-troponin, c-tropomyosin
- B. b-F actin, c-troponin, a-tropomyosin
- C. c-F actin. a-troponin, b-tropomyosin
- D. b-F actin, a-troponin, c-tropomyosin

**Answer: C**



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6. Component of actin filament of a sarcomere is

- A. Myosin and troponin
- B. Troponin and actin
- C. Actin and myosin

D. Actin, troponin and tropomyosin

**Answer: D**



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7. Anisotropic band is made of

A. Myosin filaments

B. Actin filaments

C. Elastin filaments

D. Both A and B

**Answer: D**



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8. Which one is incorporated in muscle fibres?



A. Acetylcholine

B. Myoglobin

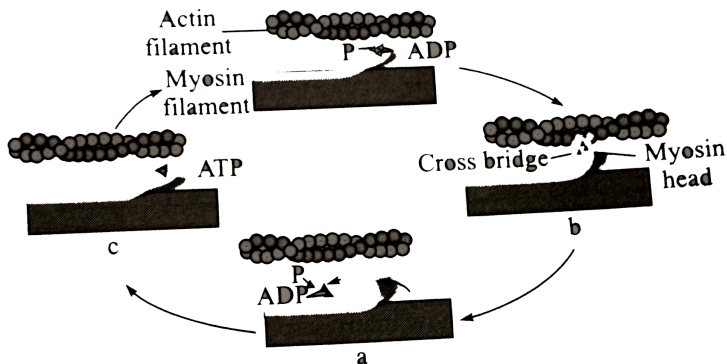
C. Histone

D. Cytochrome

Answer: B

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9. Recognise the figure and find out the correct matching.



A. a formation of cross bridge. b-breaking of cross bridge. c-rotation or sliding

B. c-formation of cross bridge, a-breaking of cross bridge. b-rotation or sliding

C. b-formation of cross bridge. c-breaking of cross bridge, a-rotation or sliding

D. c-formation of cross bridge, b-breaking of cross bridge, a-rotation or sliding

**Answer: C**



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## Section A Topicwise Questions Topic 3 Mechanism Of Muscle Contraction

1. Read the following statements and find out the incorrect statement(s).

A. Sliding filament theory states that contraction of a muscle fibre takes place by the sliding of the thick filaments over the thin

filaments.

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

C. A motor neuron along with the muscle fibre connected to it constitute a motor-end plate.

D. All of the above

**Answer: D**



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2. The junction between a motor neuron and the sarcolemma of the muscle fibre is called the

A. Motor unit

B. Motor end plate

C. Neuromuscular junction (NMJ)

D. Both B and C

**Answer: D**



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3. A neutral signal reaching the NM releases a neurotransmitter (acetylcholine) which generates an action potential in

A. Sarcolemma

B. Sarcoplasmic reticulum

C. Sarcoplasm

D. Cross arm

**Answer: A**



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4. During muscular contraction, the myosin head binds to the exposed active sites on actin to form a

- A. Motor unit
- B. Motor end plate
- C. Cross bridge
- D. Cross arm

**Answer: C**



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5. In which of the following steps of muscle contraction energy is utilised in the form of ATP?

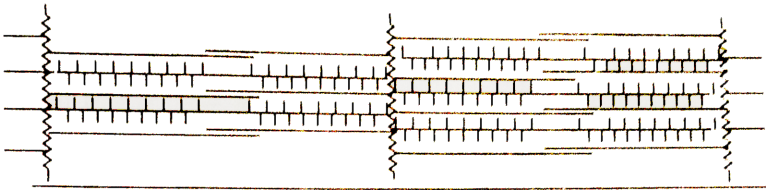
- A. Release of calcium ion into the sarcoplasm
- B. Formation of cross bridge
- C. Breaking of cross bridge

D. Both B and C

**Answer: B**

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6. In the given figure how many sarcomeres are seen?



A. 2

B. 3

C. 4

D. 1

**Answer: A**

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7. Read the following statements and find out the incorrect statement.

- A. White fibre has high amount of sarcoplasmic reticulum but the number of mitochondria are few
- B. White fibre depends on an anaerobic process for energy
- C. The reaction time of the fibres can vary in different muscles
- D. The process of cross-bridge formation and breaking continues till the calcium ions are pumped back to the sarcoplasmic cisternae resulting in the masking of myosin filaments.

**Answer: D**



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8. Statements: 1. A bands are dark and contain myosin.

I-bands are light and contain actin.

3. During action, A band contracts.

4. Part between two Z-lines is sarcomere.

5. Central part of thin filaments, not overlapped by thick filaments is H-zone.

A. 1, 2 and 3 are correct, 4 and 5 incorrect

B. 1, 3 and 5 correct, 5 and 4 incorrect

C. 1, 2 and 4 correct, 3 and 5 incorrect

D. 1 and 2 correct, 3, 4 and 5 incorrect

**Answer: C**



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9. During contraction of muscles  $Ca^{2+}$  attaches to

A. Troponin-C

B. Troponin-A

C. Calmodulin



D. Cal binding

**Answer: A**



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**10. Substance that accumulates in a fatigued muscle is**

A. Pyruvic acid

B. Lactic acid

C.  $CO_2$

D. A.D.P.

**Answer: B**



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11. Muscle band that remains unchanged during contraction and relaxation of skeletal muscle is

- A. I
- B. H
- C. A
- D. Z-line

**Answer: C**



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12. Match the following and mark the correct option

Column I

Column II

Fast muscle fibres    *i.* Myoglobin

Slow muscle fibres    *ii.* Lactic acid

Actin filament        *iii.* Contractile unit

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, cu-iv, d iii

D. a iii, b-ii, 0 iv, d-i

**Answer: A**



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

" " Or

The contractile protein of skeletal muscle involving ATPase activity is

A. Actinin

B. Troponin

C. Myosin

D. Actin

**Answer: C**



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14. The functional unit of contractile system in a striated muscle is

- A. Sarcomere
- B. Z-band
- C. Cross bridge
- D. Myofibril

**Answer: A**



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15. Which one is a bone of forelimb?

- A. Humerus
- B. Femur
- C. Tibia

D. Fibula

**Answer: A**



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**16.** Red muscles fibres are rich in

A. Golgi bodies

B. Mitochondria

C. Lysosomes

D. Ribosomes

**Answer: B**



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**17.** The reactions which change lactic acid into glycogen

A. Calvin cycle

B. Coricycle

C. Krebs' cycle

D. Glycolysis

**Answer: B**



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**18.** Sliding filament theory of muscle contraction was given by

A. Arnon and Hill

B. Huxley and Pullman

C. Huxley and Huxley

D. Pullman and Pullman

**Answer: C**



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19. Which is true of muscle contraction?

- A. Sarcolemma becomes permeable to  $Ca^{2+}$  ions.
- B. Sarcolemma becomes permeable to  $Na^{+}$  ions.
- C. Sarcolemma becomes non-permeable to  $Na^{+}$  ions
- D. Concentration of  $Ca^{2+}$  ions is reduced in 'myoplasm.

Answer: B



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20. During muscle contraction

- A. Size of A-band remains the same
- B. Size of H-zone becomes smaller
- C. Size of I-band decreases

D. All of the above

**Answer: D**



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21. Which of the following ions help in muscle contraction ?

A.  $Ca^{2+}$  and  $Mg^{2+}$

B.  $Ca^{2+}$  and  $Na^{2+}$

C.  $Na^{+}$  and  $K^{+}$

D.  $Mg^{2+}$  and  $K^{+}$

**Answer: C**



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22. During strenuous exercise glucose is converted into



A. Glycogen

B. Pyruvic acid

C. Starch

D. Lactic acid Skeletal

**Answer: D**



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**23.** Which of the following is a source of energy for muscle contraction ?

A. Glucose

B. GTP

C. Creatinine phosphate

D. ATP

**Answer: D**



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24. Which one yields ATP required for muscle contraction?

- A. Myoglobin
- B. Creatine phosphate
- C. Creatinine phosphate
- D. Myosin

**Answer: B**



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25. EDTA injected into muscles combines with  $Ca^{2+}$  and

- A. Stops contraction
- B. Causes contraction
- C. Slows down contraction

D. None of the above

**Answer: A**



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## Section A Topicwise Questions Topic 4 Skeletal System

1. Ribs are attached to

- A. Scapula
- B. Sternum
- C. Clavicle
- D. Ilium

**Answer: B**



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2. Intervertebral disc is found in the vertebral column of

- A. Birds
- B. Reptiles
- C. Mammals
- D. Amphibians

**Answer: C**



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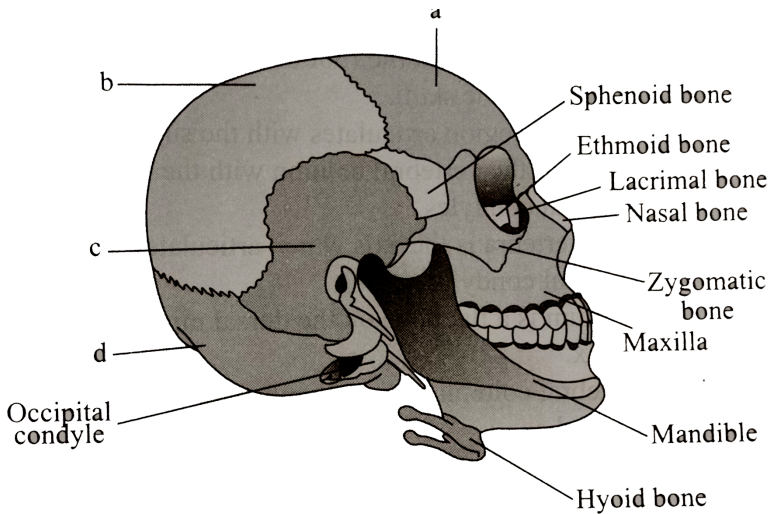
3. Which one of the following is showing the correct sequential order of vertebrae in the vertebral column of human beings ?

- A. Cervical-lumbar-thoracic-sacral-coccygeal
- B. Cervical-thoracic-sacral-lumbar-coccygeal
- C. Cervical-sacral-thoracic-lumbar-coccygeal
- D. Cervical-thoracic lumbar-sacral-coccygeal

Answer: D

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4. Recognise the figure and find out the correct matching.

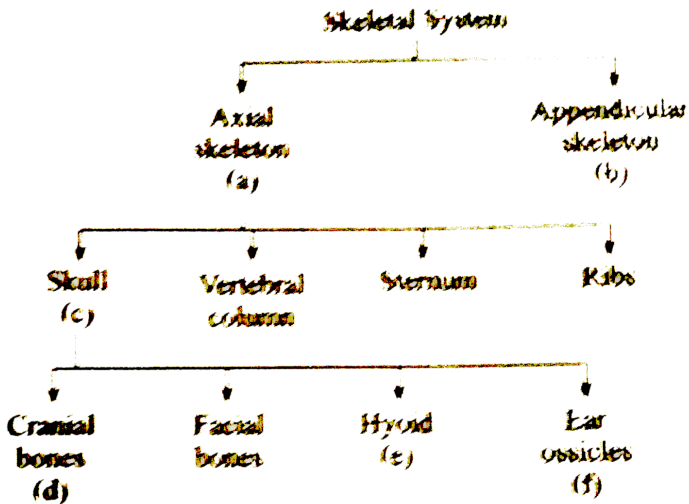


- A. a-parietal bone, b-occipital bone, c-frontal bone, d-temporal bone
- B. b-parietal bone, a-occipital bone, d-frontal bone, c-temporal bone
- C. b-parietal bone, d-occipital bone, a-frontal bone, c-temporal bone
- D. a-parietal bone, c-occipital bone, b-frontal bone, d-temporal bone

Answer: C

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5. Recognise the figure and find out the number of bones in specific regions a,b,c,d,e and f



A. a-126,b-80,c-14,d-6,e-8,f-3

B. a-80,b-126,c-29,d-14,e-1,f-3

C. a-80,b-126,c-29,d-8,e-1,f-6

D. a-126,b-80,c-29,d-14,e-2,f-6

**Answer: C**



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**6. The hard protective outer covering for the brain is called**

- A. Skull and made of 20 bones
- B. Skull and made of 14 bones
- C. Cranium and made of 14 bones
- D. Cranium and made of 8 bones

**Answer: D**



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**7. The front (facial region) of the skull is made up of**

- A. 8 skeletal elements

B. 14 skeletal elements

C. 29 skeletal elements

D. 22 skeletal elements

**Answer: B**



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**8.** Read the following statements and find out the incorrect

(a) Hyoid is present at the roof of the buccal cavity and included in the skull

(b) The skull region articulates with the superior region of the vertebral column with the help of two occipital condyles

(c) First vertebra is the axis which articulates with the occipital condyles

(d) Sternum is a flat bone on the dorsal midline of the thorax.

Vertebral column is dorsally placed Appendicular girdle

A. b, c and e

B. c, d and e



C. a, c and d

D. a, b and d

**Answer: C**



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**9. Main framework of the trunk is constituted by**

A. Skull

B. Vertebral column

C. Sternum

D. Ribs

**Answer: B**



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10. Each vertebra has a central hollow portion through which spinal cord passes. This hollow portion of vertebra is Pectoral girdle Pelvic girdle called

- A. Neural canal
- B. Central canal
- C. Foramen magnum
- D. Foramen ovale

**Answer: A**



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11. Select out the functions of the vertebral column from the

- (a) It protects the spinal cord
- (b) It supports the head.
- (c) It serves as the point of attachment for the ribs.
- (d) It serves as the point of attachment for the musculature of back.

A. a, b and c

B. b, c and d

C. a, b and d

D. a, b, c and d

**Answer: D**



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**12.** Match the columns I and II, and choose the correct combination from the options given

Column I

Column II

(a) True ribs

(i) First 7 pairs

(b) Floating ribs

(ii) 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> pairs

(c) Vertebrochondral ribs

(iii) 11<sup>th</sup> & 12<sup>th</sup> pairs

A. a-i, b-ii, c-iii

B. a-i, b-iii, c-ii

C. a-ii, b-i, c-iii

D. a-ii,b-iii,c-i

**Answer: B**



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**13.** Match the columns I and II, and choose the correct combination from the options given

Column I

Column II

(a) Tribus ribs

(1) Attached to vertebral column dorsally and to seven

(b) False ribs

(2) Do not connected ventrally

(c) Floating ribs

(3) Attached to vertebral column dorsally and to stern

A. a-1,b-2,c-3

B. a-3,b-1,c-2

C. a-1,b-3,c-2

D. a-3,b-2,c-1

**Answer: B**



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14. How many phalanges are present in a normal human adult?

A. 14

B. 30

C. 29

D. 56

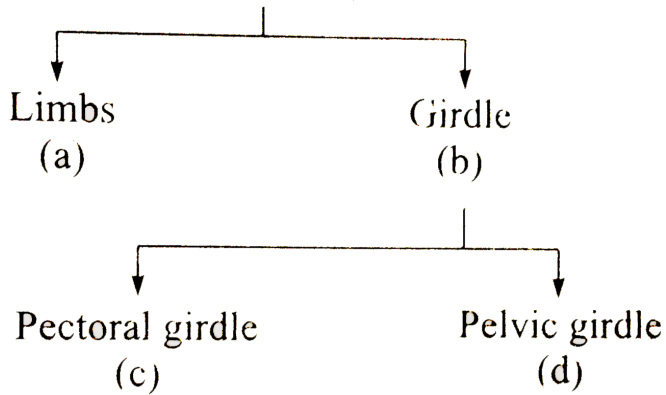
**Answer: D**



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15. Recognise the figure and find out the number of bones in thorax.  
given parts of body.

Appendicular skeleton  
(126 bones)



A. a-30,b-14,c-8,d-16

B. a-120,b-6,c-2,d-4

C. a-120,b-6,c-4,d-2

D. a-120,b-c,c-3,d-3

**Answer: C**



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16. Each girdle is formed of two halves. Each half of pectoral girdle consists of

A. 4bones-2scapulse and 2 clavicles

B. 2bones-1scapulsa and I clacicle

C. 2 coxal bones

D. 1 coxal bone

**Answer: B**



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**17. Match the columns I and II, and choose the correct combination from the options given**

Column I

Column II

- |                       |             |
|-----------------------|-------------|
| (a) Cup-shaped bone   | (1)Clavicle |
| (b) U-shaped bone     | (2)Patella  |
| (c) Long slender bone | (3)Rib      |
| (d) Thrid flat bone   | Hyoid       |

A. a-4,b-3,c-2,d-1

B. a-2,b-4,c-1,d-3

C. a-1,b-4,c-2,d-3

D. a-2,b-4,c-3,4-1

**Answer: B**



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**18.** Pelvic girdle consists of ventrally

- A. Two coxal bones
- B. One coxal bone a. Floatmg
- C. Three coxal bones
- D. Four coxal bones

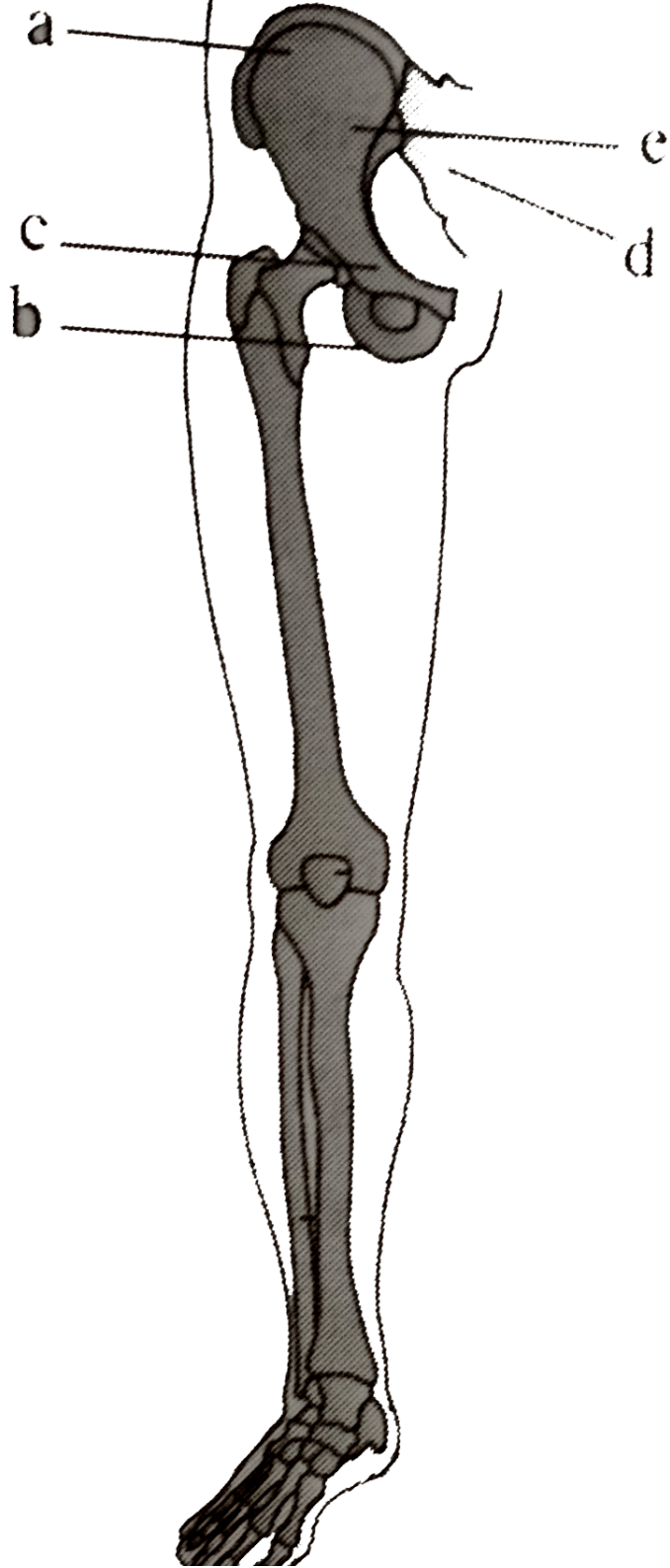
**Answer: A**



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**19.** Recognise the figure and find out the correct matching







- A. a-illum, b-ischium, c-pubis, d--sacrum, e-coxal bone
- B. b-iliium, a-ischium, c-pubis, e-sacrum, d-coxal bone
- C. c-iliium, b-ischium, a-pubis, d-sacrum, e-coxal bone
- D. b-iliium, c-ischium, a-pubis, e-sacrum, d-coxal bone

**Answer: A**



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**20.** How many curvature(s) is/are present in clavicle bone?

- A. 1
- B. 2
- C. 3
- D. 4

**Answer: B**



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**21.** Scapula is a large flat bone of the pectoral girdle situated in the dorsal part of thorax between the

- A. Last thoracic and third lumbar vertebra
- B. Fifth thoracic and seventh lumbar vertebra
- C. Second to seventh ribs
- D. Second the seventh vertebrae

**Answer: C**



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**22.** The dorsal, flat, triangular body of scapula has a slightly elevated ridge called the

A. Spine

B. Acromion process

C. Olecranon process

D. Odontoid process

**Answer: A**



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**23.** Spine of the scapula is projected as a fiat, expanded process called

A. Acromion

B. Olecranon

C. Odontoid

D. Trochanter

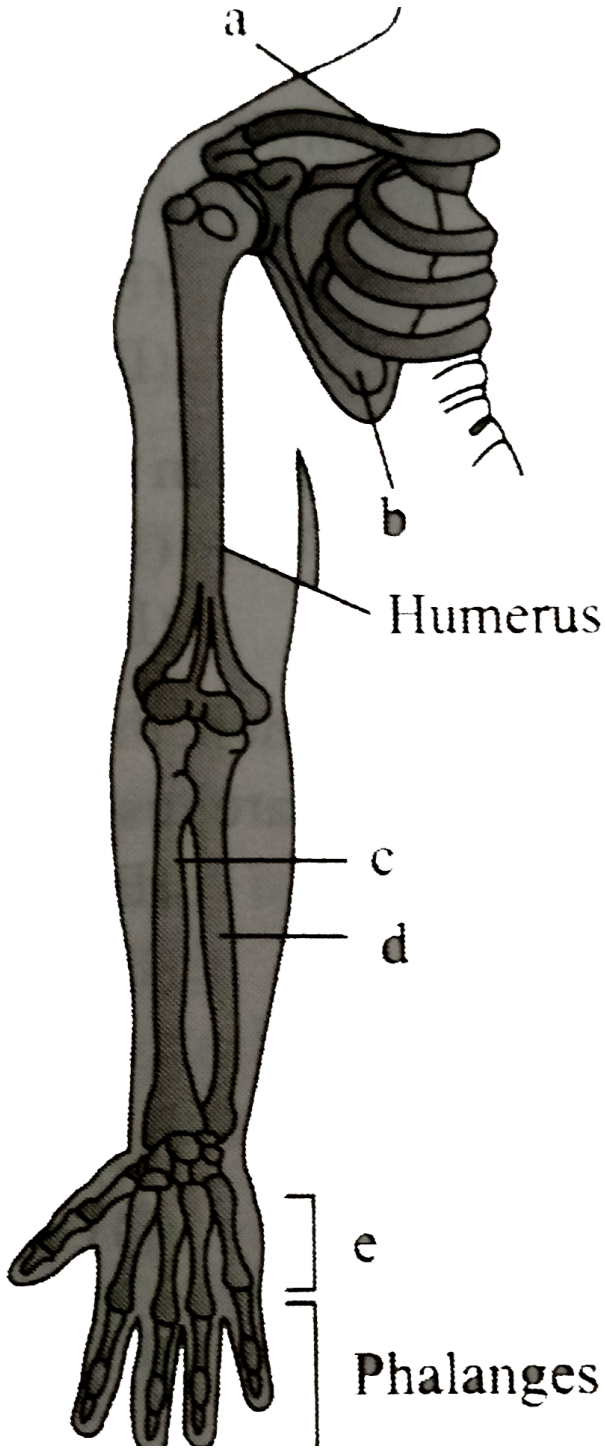
**Answer: A**



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24. Recognise the figure and find out the correct matching



- A. a-scapula, b-clavicle, c-radius, d-ulna, e-carpals
- B. a-clavicle, b-scapula, c-ulna, d-radius, e-metacarpals
- C. a-clavicle, b-scapula, c-radius, d-ulna, e-metacarpals
- D. a-collar bone, b-scapula, c-radius, d-ulna, e-wrist bones

**Answer: C**



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**25. Acromion process articulates with the**

- A. Head of humerus
- B. Head of femur
- C. Collar bone (clavicle)
- D. Sternum (breast bone)

**Answer: C**



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26. Pectoral girdle is made of

- A. Two innominates
- B. Two clavicles and two scapulae
- C. One clavicle and one scapula
- D. Two clavicles and one scapula

**Answer: B**



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27. Match the columns I and II, and choose the correct combination from the options given



Column I	Column II
(a) Wrist bones	(1) Metacarpals
(b) Thigh bone	(2) Carpals
(c) Ankle bones	(3) Phalanges
(d) Palm bones	(4) Tarsals
(e) Digits	(5) Femur

A. a-2, b-3, c-1, d-5, e-4

B. a-4, b-5, c-2, d-1, e-3

C. a-2, b-5, c-4, d-1, e-3

D. a-1, b-3, c-4, d-2, e-5

**Answer: C**



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**28. Skull of Rabbit/Man is**

Column I	Column II
(a) Wrist bones	(1) Metacarpals
(b) Thigh bone	(2) Carpals
(c) Ankle bones	(3) Phalanges
(d) Palm bones	(4) Tarsals
(e) Digits	(5) Femur

A. Monocondylic

B. Die

C. Tricondylic

D. Tetracondylic

**Answer: B**



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**29. Longest bone is that of**

A. Humerus

B. Stapes

C. Femur

D. Radio-ulna

**Answer: C**



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30. Number of bones in cranium, face, hyoid and middle ear are respectively

- A. 14,8,1 and 3
- B. 8, 14, 1 and 3
- C. 3,8,14 and 1
- D. 14, 8, 3 and 100

**Answer: B**



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31. Total number of bones found in human skull are

- A. 22
- B. 29
- C. 14

D. 30

**Answer: B**



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**32.** The number of vertebrae present in cervical, thoracic, lumber, sacral and coccyx regions respectively are

A. 12,7, 5,1,1

B. 1, 7, 5, 12,1

C. 7,12, 5,1,1

D. 5,12, 7,1,1

**Answer: A**



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33. The first cervical vertebra is

A. Axis

B. Atlas

C. Lumbar

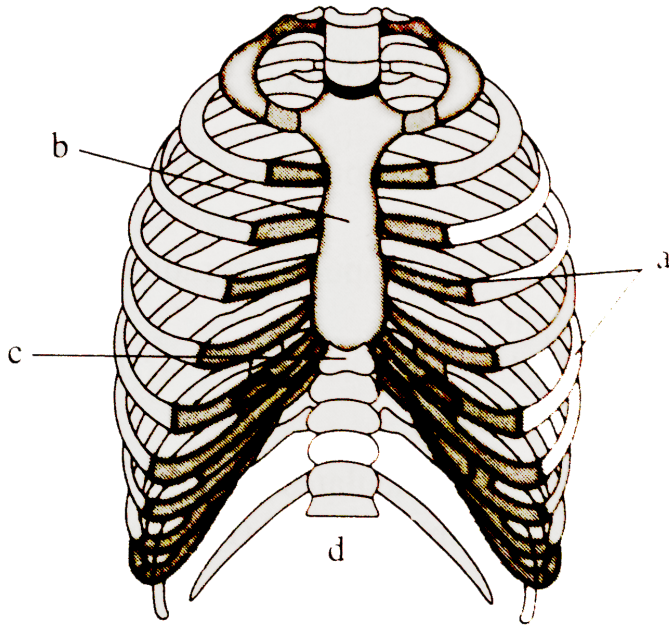
D. Sacral

**Answer: B**



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34. Recognise the figure and find out the correct matching.



- A. a-ribs, b-vertebral column, c-rib cage, d-sternum
- B. a-ribs, c-vertebral column, d-rib cage, b-sternum
- C. d-ribs, c-vertebral column, a-rib cage, b-sternum
- D. a-ribs, b-vertebral column, d-rib cage, c-sternum

Answer: B



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**35.** Smallest bone in Rabbit and Man is

- A. Stapes
- B. Patella
- C. Nasal
- D. Palatine

**Answer: A**



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**36.** Cervical vertebrae are located in

- A. Thoracic region
- B. Abdominal region
- C. Neck region
- D. Lumbar region

**Answer: C**



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**37.** How many ribs are present in human beings

A. 24

B. 10

C. 11

D. 12

**Answer: A**



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**38.** Which of the following is an example of appendicular skeleton?

A. Bones of skeleton



B. Bones of vertebral column

C. Both A and B

D. Bones of forelimb and hind limb

**Answer: D**



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**39.** Match the columns I and II, and choose the correct combination from the options given

Column I	Column II
Bones of limb	Number
(1) Carpals	(a) 5
(2) Tarpals	(b) 6
(3) Metacarpals	(c) 7
(4) Metatarsals	(d) 8

A. 1-c, 2-d, 3-a, 4-b

B. 1-d, 2-c, 3-b, 4-a

C. 1-c, 2-d, 3-a, 4-a

D. 1-d,2-c, 3-a,4-a

**Answer: D**



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**40.** Lumbar vertebrae are found in

A. Abdominal region

B. Thorax

C. Neck region

D. Hip region

**Answer: A**



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**41.** Acromion process is a part of

A. Vertebral column

B. Pelvic girdle

C. Femur

D. Pectoral girdle

**Answer: D**



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**42.** Hyoid bone occurs in

A. Appendicular or skeleton

B. Skull

C. Pelvic girdle

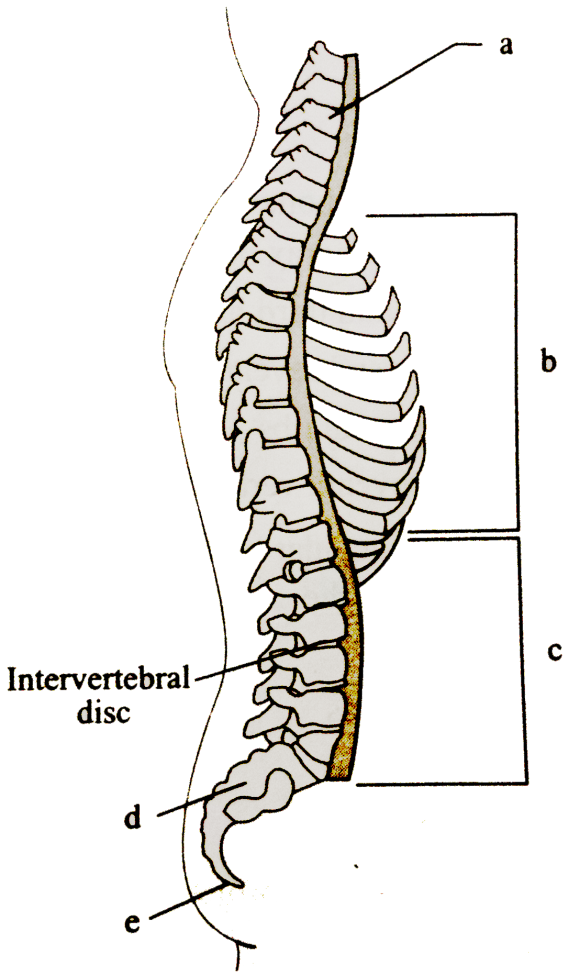
D. Pectoral girdle

**Answer: B**



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43. Recognise the figure and find out the correct matching.



A. a-cervical vertebra, b-lumbar vertebrae. c-thoracic vertebrae, d-coccyx, e-sacrum

B. a-cervical vertebra, c-lumbar vertebrae, b thoracic vertebrae, d-coccyx. e-vsacmm

C. b-cervical vertebra. c-lumbar vertebrae. dthoracic vertebrae. Hoccoyx. b-sacrum

D. a-cervical vertebra, c-lumbar vertebrae. b-thoracic vertebrae, e-coccyx. d-sacrum

**Answer: D**



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**44.** Cranium of human contains

A. 8

B. 14

C. 22

D. 29

**Answer: A**



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**45.** Number of bones present in an arm are

A. 30

B. 60

C. 29

D. 24

**Answer: A**



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**46.** Pick up the correct match

(a) Sternum (i) 14

(b) Ribs (ii) 1

(c) Pelvis (iii) 24

(d) Face (iv) 3

A. a-ii. b-iii. c-iv, d-i

B. a-ii. b-iv, c-i, d-iii

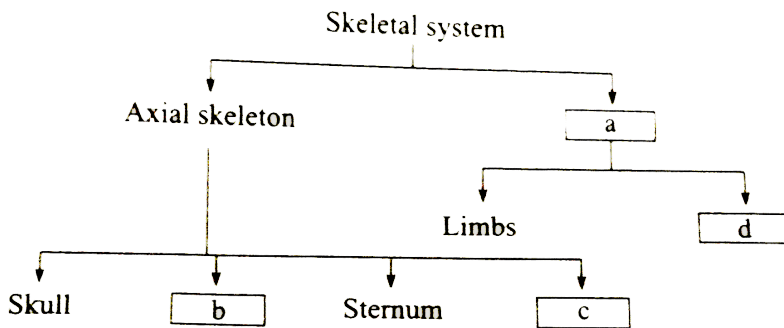
C. a-ii, b-iii, c-i, d-iv

D. a-ii. b-i, c-iii, d-iv

**Answer: A**

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**47.** Recognise the figure and find out the correct matching.



A. a-appendicular skeleton, b-cranium, c-facial bones. d-pelvis.

B. a-girdles. b-vertebral column, c-cranium, d-coxal bone

C. appendicular skeleton, b-vertebral column, o-ribs. d-girdles

D. a-appendicular skeleton, b-cranial bones. cfacial bones, d-girdles

**Answer: C**



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**48.** Bone formed by ossification of tendon is

A. Dermal bone

B. Cartilage

C. Sesamoid bone

D. Membranous bone

**Answer: C**



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49. Spinal cord passes through

- A. Foramen of Monro
- B. Iter
- C. Obturator foramen
- D. Foramen magnum

**Answer: D**



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50. Number of bones in human body is

- A. 206
- B. 205
- C. 306
- D. 305

**Answer: A**



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## Section A Topicwise Questions Topic 5 Joints

1. Which one of the following options is incorrect ?

- A. Hinge joint--between humerus and pectoral girdle
- B. Pivot joint-between atlas, axis and occipital condyle
- C. Gliding joint-between the carpals
- D. Saddle joint~between carpal and metacarpals of thumb

**Answer: A**



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2. Knee joint and elbow joints are examples of

- A. Saddle joint
- B. Ball and socket joint
- C. Pivot joint
- D. Hinge joint

**Answer: D**

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**3. 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 glenoid cavity of pelvic girdle

**Answer: B**



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4. Match the columns I and II, and choose the correct combination from the options given

Column I

(a) Cartilaginous joints

(b) Fibrous joints

(c) Synovial joints

Column II

(1) No movement

(2) Considerable movement

(3) Limited movement

A. a-1, b-2, c-3

B. a-1, b-3, c-2

C. a-3, b-1, c-2

D. a-2, b-1, c-3

**Answer: C**



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5. Which of the following joint helps in locomotory movements?

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

**Answer: C**



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6. Read the following statements and find out the incorrect

- A. H-zone of striated muscle fibre represents both thick and thin [ilaments
- B. Joints between pubic bones in the pelvic girdle is fibrous

C. Joints present between phalanges is hinge

D. The number of phalanges in each limb of human are fourteen.

**Answer: A**



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7. 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-v, b-iv, c-ii, d-i

B. a-ii, b-rv, c-wiv, d-i

C. a-i, b-ii, c-v, d-iv

D. a-v, b-iv, c-iii, d-i

**Answer: A**



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

- A. Fibrous joint
- B. Cartilaginous joint
- C. Synovial joint
- D. All of the above

**Answer: C**



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9. What are correct about synovial joint?

- 1. Ball and socket
- 2. Pivot joint

3.Hinge joint

(4). Cartilaginous joint

A. 1, 2,3correct

B. 1, 2 correct

C. 2, 4 correct

D. 1, 3 correct

**Answer: A**



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10. The joint of femur with pelvic girdle is

A. Hinge joint

B. Immovable joint

C. Pivot joint

D. Ball and socket joint



**Answer: D**



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**11. Joint between metacarpals and phalanges is**

- A. Ball and socket
- B. Pivot
- C. Saddle
- D. Hinge

**Answer: D**



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**12. Joint of sternum and ribs is**

- A. Cartilaginous

B. Angular joint

C. Angular joint

D. Hinge joint

**Answer: A**



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**13.** Match the columns 1 and II. and choose the correct combination from the options given.

Column I

Column II

(a) Smooth muscle

(1) Myoglobin

(b) Tropomyosin

(2) Thin filament

(c) Red muscle

(3) Sutures

(d) Skull

(4) Involuntary

A. a-2, b-3, c-4, d-1

B. a-4, b-1, c-2, d-3

C. a-1, b-2, c-4, d-3

D. a-4, b-2, c-1, d-3

**Answer: D**



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**14.** Synovial fluid is present in

- A. Spinal cavity
- B. Cranial cavity
- C. Freely movable joints
- D. fixed joints

**Answer: C**



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**15.** Ankle joint is

- A. Pivot joint

B. Ball and socket joint

C. Hinge point

D. Gliding joint

**Answer: C**



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**16. Joint between humerus and radio-ulna is**

A. Ball and socket

B. Gliding

C. Pivot

D. Hinge

**Answer: D**



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17. 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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18. The type of joint between the human skull bones is called

A. Hinge joint

B. Synovial joint

C. Cartilaginous joint

D. Fibrous joint

**Answer: D**



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19. Joint between atlas and odontoid process of axis is

A. Pivot joint

B. Saddle joint

C. Angular joint

D. Hinge joint

**Answer: A**



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## Section A Topicwise Questions Topic 6 Disorders Of Muscular And Skeletal System

1. Which one of the following is not a disorder of bone ?

- A. Atthritis
- B. Osteoporosis
- C. Rickets
- D. Atherosclerosis

**Answer: D**



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2. of the following disorders affects the neuromuscular junction (NMJ) leading to fatigue, weakening and paralysis of skeletal muscle?

- A. Myasthenia gravis
- B. Muscular dystrophy

C. Osteoporosis

D. Tetany

**Answer: A**



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3. Decreased levels of estrogen is common cause of

A. Arthritis

B. Gout

C. Osteoporosis

D. Tetany

**Answer: C**



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4. Gout is due to

- A. Accumulation of  $Ca^{2+}$  ions
- B. Low  $Ca^{2+}$  ions in body fluid
- C. Accumulation of uric acid crystals
- D. Low uric acid content in body fluids

Answer: C



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5. Match the columns I and II, and choose the correct combination from the options given.

Column I

- (a) Muscular dystrophy
- (b) Myasthenia gravis
- (c) Osteoporosis
- (d) Tetany
- (e) Gout

Column II

- (1) Age-related disorder
- (2) Auto-immune disorder
- (3) Genetic disorder
- (4) Wild contractions
- (5) Inflammation of joints

A. a-3, b-2, c-1, d-4, e-5

B. a-1,b-3,c-2, d-5,e-4

C. a-2,b-1,c-3,d-4, e-5

D. a-2, b-3, c-1, d-5, e-4

**Answer: A**



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

A. Myasthenia gravis

B. Muscular dystrophy

C. Arthritis

D. Tetany

**Answer: B**



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7. Gout that leads to arthritis is associated with abnormality of

- A. Pyrimidine metabolism
- B. Purine metabolism
- C. Fat-metabolism
- D. Protein metabolism

**Answer: B**



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## Section B Assertion Reasoning Questions

1. Assertion: Skeletal muscles are also known as voluntary muscles.

Reason: The activity of the skeletal muscles is under the voluntary control of the nervous system.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion.
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion:
- C. If assertion is true but reason is false.
- D. If both assertion and reason are false.

**Answer: A**



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2. Assertion: Visceral muscles are called smooth muscles of non-striated muscles.

Reason: The Visceral muscles do not exhibit myofibrils.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

- B. If both assertion and reason are true but reason is not the correct explanation of the assertion:
- C. If assertion is true but reason is false.
- D. If both assertion and reason are false.

**Answer: A**

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**3. Assertion:** Muscle fibre is syncytium.

**Reason:** Sarcoplasm contains many nuclei.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion.
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion:
- C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer: A**



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**4. Assertion:** Each muscle fibre contains a number of muscle bundles.

**Reason:** Each muscle fibre is lined by the plume membrane called sarcomere enclosing the nmoplum

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion.
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion:
- C. If assertion is true but reason is false.
- D. If both assertion and reason are false.

**Answer: D**



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5. Assertion: Striated appearance of skeletal muscle is due to the distribution pattern of two important protein Actin and Myosin.

Reason: Actin filaments are thinner as compared to the myosin filaments.

hence are commonly called thick and thin filaments respectively

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion.
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion:
- C. If assertion is true but reason is false.
- D. If both assertion and reason are false.

**Answer: C**



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6. Assertion: White fibers appear pale or whitish.

Reason: White fibers (muscles) possess very less quantity of myoglobin

- A. Both assertion and reason are true and the reason is the correct explanation of the assertion.
- B. Both assertion and reason are true but reason is not the correct explanation of the assertion:
- C. Assertion is true but reason is false.
- D. Both assertion and reason are false.

**Answer: A**



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7. Assertion: Bone has very hard matrix whereas cartilage has pliable matrix.



Reason: Bone has calcium salts in its matrix whereas cartilage has chondroitin salts in its matrix.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion.
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion:
- C. If assertion is true but reason is false.
- D. If both assertion and reason are false.

**Answer: A**



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**8. Assertion:** Human ribs are called bicephalic

**Reason:** Ribs have two articulation surfaces on its dorsal end.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion.
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion:
- C. If assertion is true but reason is false.
- D. If both assertion and reason are false.

**Answer: A**



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**9. Assertion:** Cervical vertebrae, ribs and sternum together form the rib cage.

**Reason:** The bones of the limbs along with the girdles constitute the axial skeleton.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

- B. If both assertion and reason are true but reason is not the correct explanation of the assertion:
- C. If assertion is true but reason is false.
- D. If both assertion and reason are false.

**Answer: D**

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**10.** Assertion: Pectoral girdle articulates the with the axial skeleton while pelvic girdle articulates the upper limbs with the axial skeleton.

Reason: The two halves of the pelvic girdle meet ventrally to form the pubic symphysis containing hyaline cartilage.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion.
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion:

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer: D**



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**11.** Assertion: Joints are essential for all types of movement involving the bony parts of the body.

Reason: Joints are point of contact between bone and cartilages.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion:

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer: B**



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**12.** Assertion: Tetany is the rapid spasms in muscle. Reason: Tetany is due to low  $Ca^{2+}$  in body fluid.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion.
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion:
- C. If assertion is true but reason is false.
- D. If both assertion and reason are false.

**Answer: A**



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**13.** Assertion: Inflammation of joints is called muscular increases.

Reason: In osteoporosis bone mass decrease and chances of fractures increases.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion.
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion:
- C. If assertion is true but reason is false.
- D. If both assertion and reason are false.

**Answer: B**



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**14.** Assertion: Progressive degeneration of visceral muscle is called muscular dystrophy.

Reason: Muscular dystrophy is due to decreased level of estrogen in old age.

- A. If both assertion and reason are true and the reason is the correct explanation of the assertion.
- B. If both assertion and reason are true but reason is not the correct explanation of the assertion:
- C. If assertion is true but reason is false.
- D. If both assertion and reason are false.

**Answer: D**



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## Section D Chapter End Test

1. Centrum of 8<sup>th</sup> vertebra of frog is

- A. Precocious
- B. Acoelgus
- C. Amphiplatyan
- D. Amphicoelous

**Answer: D**

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**2. Hinge joint occurs between**

- A. Humerus and ulna/radio-ulna
- B. Femur and pelvic girdle
- C. Humerus and pectoral girdle
- D. Skull and atlas

**Answer: A**

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3. Achilles tendon is associated with

- A. Hamstring muscle
- B. Gluteus muscle
- C. Quadriceps muscle
- D. Gastrocnemius muscle

**Answer: D**



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4. A joint made for power is

- A. Knee joint
- B. Suture in cranium
- C. Joint between vertebrae

D. Mandibular joint

**Answer: D**



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5. Bones become fragile due to

A. Arthritis

B. Osteoporosis

C. Gout

D. None of these

**Answer: B**



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6. Yellow bone marrow occurs in medullary cavity of

- A. Short bones
- B. Spongy bones
- C. Long Bones
- D. All of the above

**Answer: C**

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7. Obturator foramen occurs in

- A. Pelvic girdle
- B. Pectoral girdle
- C. Cranium
- D. Vertebrate

**Answer: A**

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8. 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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9. Hensen's disc occurs in

- A. Myofibril of striated muscle
- B. Myofibril of unsaturated muscle
- C. Myofibril of heart muscle

D. None of above

**Answer: A**



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10. A bone is connected to another by

A. Tendon

B. Liagament

C. Cartilage

D. Muscle

**Answer: B**



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11. Joint where synovial capsule and synovial fluid are lacking is

- A. Carpal-carpel
- B. Public symphysis in femals
- C. Finger and toes in males
- D. Femur and pelvis in femals

**Answer: B**

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**12.** Lactic acid generated during muscle contraction is elaborated to form glycogen in

- A. Liver
- B. Pancreas
- C. Kidney
- D. Muscle

**Answer: A**

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13. True joints are

- A. Synovial joints
- B. Synchrondmsis
- C. Syndesmoscs
- D. Symphyscs

**Answer: A**

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14. Sigmoid notch of olecranon process is found in

- A. Tibio-fibula
- B. Femuer
- C. Radio-ulna

D. Humcrus

**Answer: C**



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**15.** Inter-articular disc occurs in

A. Wall of heart

B. Wall of liver

C. Public symphysis

D. In between two vertebrae

**Answer: D**



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**16.** Nucleus pulposus occurs in



A. Brain

B. Liver

C. Kidney

D. Intervetebral disc.

**Answer: D**



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17. Shape of human skeleton is

A. J-Shaped

B. M-Shaped

C. L-Shaped

D. S-Shaped

**Answer: D**



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18. Involuntary muscular contraction is called



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19. Rigor mortis is due to

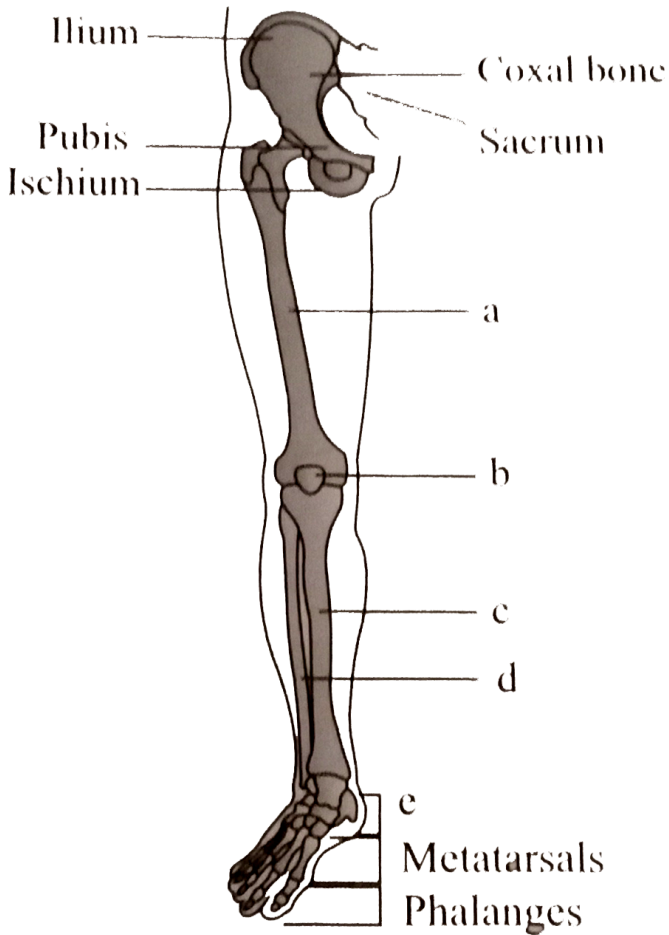
- A. Depletion of ATP
- B. Excess of ATP
- C. Excess availability of Calcium
- D. Release of Magnesium

**Answer: A**



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20. Recognise the figure and find out the correct matching



A. Thigh bone,b-knee cap, c-tibia,d-fibula,e-ankle bone

B. a-longest bone, b-cup shaped bone, c-tibia, d-fibula,e-tarsals

C. a-femur,b-patella,c-tibia,d-fibula,e-7 in number

D. All of the above

**Answer: D**



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**21. Cervical vertebrae are characterised by**

A. Transverse processes

B. Neural spines

C. Vertebro-arterial canals

D. Odontoid process

**Answer: C**



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22. At times ligaments and tendons are overstretched or torn. The phenomenon is

- A. Sprain
- B. Dislocation
- C. Fracture
- D. (D) Tension

**Answer: A**



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23. Friction is lessened in ball-and-socket joint by

- A. Coelomic fluid
- B. Synovial fluid
- C. Pericardial fluid
- D. Mucin

**Answer: B**



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**24.** Axis vertebra is identified by

- A. Sigmoid notch
- B. Odontoblast
- C. Odontoid process
- D. Olecranon process

**Answer: C**



**Watch Video Solution**

**25.** Largest synovial joint is

- A. Hip joint

B. Knee joint

C. Shoulder joint

D. Ankle joint

**Answer: B**



**Watch Video Solution**

**26.** The movable skull bone is

A. Maxilla

B. Vomer

C. Mandible

D. All of the above

**Answer: C**



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27. Tail vertebrae of birds form

- A. Wish bone
- B. Chevron bone
- C. Urostyle
- D. Pygostyle

**Answer: D**



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28. Which is not the function of bones

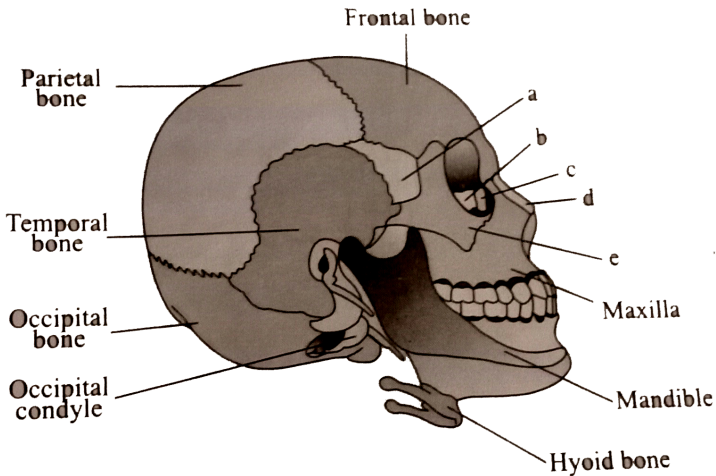
- A. Protection of vital organs
- B. Haemopoiesis
- C. Muscle attachment
- D. Secretion of hormones



Answer: D

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29. Recognise the figure and find Out the correct matching.



(A) d—nasal bone, c—lacrimal bone, e—zygomatic bone, b—ethmoid bone, a—sphenoid bone

A. d-nasal bone. c -lacrimal bone.e-Zygomatic bone. B-ethmoid bone. a-sphenoid bone

B. d-nasal bone, a-lacrimal bone, b-zygomatic bone, c-ethmoid bone, e-sphenoid bone

C. c-nasal bone, a-lacrimal bone, b-zygomatic bone, d-ethmoid bone, b-sphenoid bone

D. d-nasal bone, c-lacrimal bone, b-zygomatic bone, e-ethmoid bone, a-sphenoid bone

**Answer: A**



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**30.** Sutural joints are found between

A. Thumb and metatarsal

B. Humerus and radius-ulna

C. Parietals of skull

D. Glenoid cavity and pectoral girdle

**Answer: C**



**Watch Video Solution**

**31. Coccygeal bone occurs in**

- A. Skull
- B. Pectoral girdle
- C. Vertebral column
- D. Pectoral girdle

**Answer: C**



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**32. We move our hands while walking for**

- A. Faster movement

B. Balancing

C. Increasing blood circulation

D. Relieving tension

**Answer: B**



**Watch Video Solution**

**33.** In mammals the lower jaw is made of

A. Maxilla

B. Dentary

C. Mandible

D. Ethmoid

**Answer: C**



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34. Astragalus and calcaneum are present in

- A. Fore limb
- B. Hind limb
- C. Scapula
- D. Clavicle

**Answer: B**



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35. Comcoid is component of

- A. Forelimb
- B. Skull
- C. Pectoral girdle
- D. Pelvic girdle

**Answer: C**



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**36. Biceps is attached with**

- A. Radius
- B. Scapula
- C. Femur
- D. Both A and B

**Answer: D**



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**37. Epiphysial plate is involved in**

- A. Formation of bone

B. Elongation of bone

C. Thickness of bone

D. All of the above

**Answer: B**



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**38. Sesamoid bone is derived from**

A. Cartilage

B. Arcolar tissue

C. Tendon

D. Ligament

**Answer: C**



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39. Which one has the maximum glycogen?

- A. Liver
- B. Muscles
- C. Nerves
- D. Kidneys

**Answer: B**



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40. Long bones function in

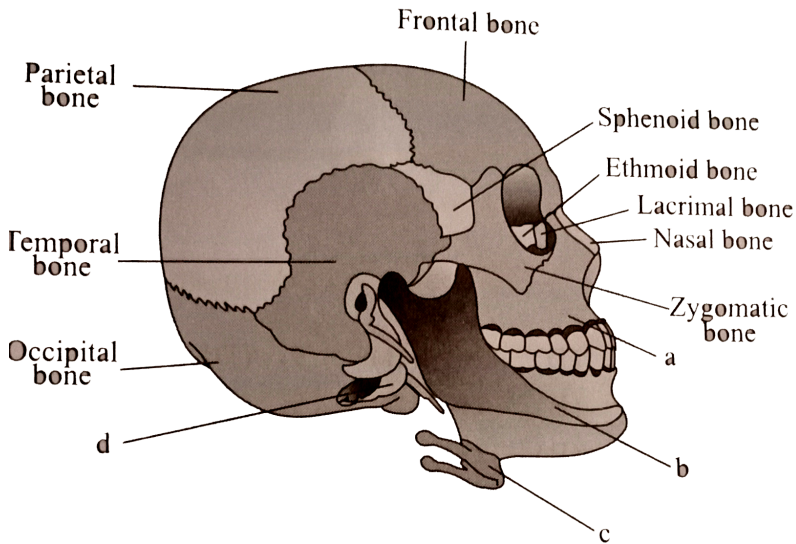
- A. Support
- B. Support, erythrocyte and leucocytes synthesis
- C. Support and erythrocyte synthesis
- D. Erythrocyte formation



Answer: B

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41. Recognise the figure and find out the correct matching



- A. a-maxilla, b-mandible, c-hyoid bone, d-occipital condyle
- B. b-maxilla, a-mandible, c-hyoid bone, d-occipital condyle
- C. a-maxilla, b-mandible, d-hyoid bone, b-occipital condyle
- D. b-maxilla, a-mandible, d-hyoid bone, b-occipital condyle

**Answer: A**



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**42. Sesamoid bone (ossified tendon) is**

- A. Patella
- B. Femur
- C. Tarsal
- D. Tibia

**Answer: A**



**Watch Video Solution**

**43. Ribs are attached to**

- A. Scapula

B. Stemum

C. Clavicle

D. Ilium

**Answer: B**



[Watch Video Solution](#)

**44.** Olecranon process occurs in

A. Femur

B. Radius

C. Humerus

D. Ulna

**Answer: D**



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45. Which one is a bone of skull?

A. Atlas

B. Femur

C. Tibia

D. Pterygoid

**Answer: D**



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46. The number of floating ribs in human body is

A. 6 pairs

B. 5 pairs

C. 3 pairs

D. 2 pairs

**Answer: D**



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**47.** Two halves of pelvic girdle are joined together by

- A. Pubic symphysis
- B. Ischaic symphyhsis
- C. Ischiopubh'c symphysis
- D. By fusion

**Answer: A**



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**48.** Each half of pelvic girdle is made of

- A. Ischium

B. Ilium

C. Pubis

D. All of the above

**Answer: D**



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**49.** Haversian canals occur in

A. All bones

B. Long bones

C. Alimentary canal

D. None of the above

**Answer: B**



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50. Haversian system is feature of :-

- A. Avian bones
- B. Reptilian bones
- C. Mammalian bones
- D. Bone of all animals

**Answer: C**



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Others

1. Which one is anatomically correct

- A. Collar bonee-3 pairs
- B. Salivary glandI-I pair
- C. Crime! nerveevlo pan

D. Floating ribs 2 pants

**Answer: D**



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2. Glenoid cavity is associated with

A. Scapula

B. Humerus

C. Femur

D. Both A and B

**Answer: D**



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3. Which one is required for muscle contraction and nerve impulse transmission ?

A.  $Ca^{2+}$

B.  $Mg^{2+}$

C.  $Fe^{2+}$

D. Both A and B

**Answer: A**



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4. Innommate is (2009)

A. A nerve

B. Anutery

C. Avein

D. A part of skeleton and an artery

**Answer: D**



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5. Wall of internal organs (stomach, intestine, blood vessels) contains muscles

A. Striped

B. Cardiac

C. Smooth

D. None of the above

**Answer: C**



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6. Which is correctly paired ?

A. Heart-Involuntary, unstriated muscle

B. Iris-Involuntary, smooth muscle

C. Biceps-Smooth muscle

D. Abdominal wall-Smooth muscle

**Answer: B**



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7. On stimulation of skeletal muscle, calcium is immediately made available for binding to troponin from

A. Blood

B. Lymph

C. Bone

D. Sarcoplasmic reticulum

**Answer: D**

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8. The unpaired facial bone is

A. Lacrimal

B. Vomer

C. Nasal

D. Palatine

**Answer: B**

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9. Which is common to kidney and skeleton in mammals

A. Cortex

B. Mediilla

C. Radius

## D. Pelvis

Answer: D



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10. Which one is correct match of three items and their grouping category? (2009) Item

Item	Group
(A) Cytosine uracil Adenine	Pyrimidines
(B) Malleus incus cochlea	Ear ossicles
(C) Ilium ischium pubis	Coxal bones of pelvic girdle
(D) Actin myosin rhodopsin	Muscle protein



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11. In man the thoracic basket is composed of

A. Ribs and sternum

B. Ribs, sternum and thoracic vertebrae

C. Ribs, sternum and lumbar vertebrae

D. Ribs and thoracic vertebrae

**Answer: B**



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12. End plate junction is present between

A. Neuron and striated muscle

B. Neuron and neuron

C. Muscle and muscle

D. Both B and C

**Answer: A**



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13. In a resting muscle fibre, troponin partially covers

- A. Ca-binding sites on actin
- B. Ca-binding sites on troponin
- C. Actin binding sites on myosin
- D. Myosin binding sites on actin

**Answer: D**



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14. In human beings the cranium is formed by

- A. Eight bones of which two are paired
- B. Ten bones in which two are paired
- C. Twelve bones of which four are paired
- D.

**Answer: A**



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

- A. Ankle joint
- B. Hip joint
- C. Radioulnar joint
- D. Metacarpophalangeal joint

**Answer: C**



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

- A. Prevent injury



- B. Absorb shock
- C. Absorb shock
- D. Prevent hyperextension

**Answer: B**



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17. Which one is correctly matched?

- A. Tibia and fibula-Both form part of knee joint
- B. Cartilage and Cornea-No blood supply but do requires O<sub>2</sub> for respiratory needs
- C. Shoulder joint and elbow joint-«Ball and socket joint
- D. Premolars and molar-ZO in all and 3-rooted

**Answer: B**



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

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

**Answer: B**



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19. The ankle, knee and elbow joints are

- A. Pivot joints
- B. Ellipsoid joints

C. Hinge joints

D. Synovial joints

**Answer: D**



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**20.** What is the location of troponin in the process of muscle contraction

A. Attached to myosin filament

B. Attached to tropomyosin

C. Attached to myosin cross-bridges

D. Attached to T-tubule

**Answer: B**



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21. Which one has oxygen storing capacity

A. Myoglobin

B. Myosin

C. Actin

D. Fibrin

**Answer: A**



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22. Which is not true for red fibres

A. Muscles contain a red coloured oxygen storing pigment

B. Muscles contain plenty of mitochondria

C. They are also called aerobic muscles

D. amount of sarcoplasmic reticulum is high

**Answer: D**



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**23.** In mammals the number of cervical vertebra is

A. 7

B. 9

C. 1

D. 12

**Answer: A**



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**24.** Which opening occurs in a pair?

A. Obturator foramen

B. Foramen magnum

C. Foramen ovalis

D. Fenestra rotundus

**Answer: A**



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**25. Symphysis consists**

A. Hyaline cartilage

B. Elastic cartilage

C. Fibrocartilage

D. Synovial fluid.

**Answer: C**



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26. Select the correct matching of the type of the joint with (2014) the example in human skeletal system.

Type of joint	Example
(A) Gliding joint	Between carpals
(B) Malleus incus cochlea	Ear ossicles
(C) Ilium ischium pubis	Coxal bones of pelvic girdle
(D) Actin myosin rhodopsin	Muscle proteins

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27. Stimulation of a 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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28. Which of the following is not a function of the skeletal system

- A. Storage of minerals
- B. Production of body heat
- C. Locomotion
- D. Production of erythrocytes

**Answer: B**



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29. Which of the following joints would allow no movement

- A. Cartilaginous joint
- B. Synovial joint
- C. Ball and Socket Joint
- D. Fibrous joint



**Answer: D**



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**30. Glenoid cavity articulates**

- A. Clavicle With scapula
- B. Humerus with scapula
- C. Clavicle With acromion
- D. Scapula with acromion

**Answer: B**



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

- A. Actin and Myosin filaments do not shorten but rather slide past each other
- B. When myofibrils slide past each other. Myosin filaments shorten while Actin filaments do not shorten
- C. When myofibrils slide past each other Actin filament: shorten while Myosin filament do not shorten
- D. Actin & Myosin filaments shorten and slide past each other

**Answer: C**

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**32.** The vertebral column of a young man gets dislocated from the skull.

Which parts are likely to be involved directly

- A. One occipital condyle and atlas vertebra
- B. Hyoid bone and axis vertebra

C. Two occipital condyles and anus vertebra

D. Two occipital condyles and atlas vertebra.

**Answer: D**



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**33.** In man vertebrocondral ribs are

A. 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup>

B. 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup>

C. 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup>

D. 11<sup>th</sup>, and 12<sup>th</sup> only

**Answer: C**



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

- A. Tetanus
- B. Tonus
- C. Spasm
- D. Fatigue

**Answer: A**



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

- A. Decreased level of estrogen
- B. Accumulation of uric acid leading to inflammation of joints

C. Immune disorder affecting neuro muscular junction leading to fatigue

D. High concentration of  $\text{Ca}^{++}$  and  $\text{Na}^{+}$

**Answer: A**



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

A. Cartilaginous joint

B. Synovial joint

C. Saddle joint

D. Fibrous joint

**Answer: B**



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37. 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.  $X=12, Y=5$  True ribs are attached dorsally to vertebral column and sternum on two ends.
- B.  $X=24, Y=7$  True ribs are dorsally attached to vertebral column but are free on ventral side.
- C.  $X=24, Y=12$  True ribs are dorsally attached to vertebral column but are free on ventral side.
- D.  $X=12, Y=7$  True ribs are attached dorsally to vertebral column and ventrally to the sternum

**Answer: D**



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38. Which of the following hormones can play a significant role in osteoporosis

- A. Aldosterone and Prolactin
- B. Progesterone and Aldosterone
- C. Estrogen and Parathyroid hormone
- D. Parathyroid hormone and Prolactin

**Answer: C**



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39. Calcium is important in skeletal muscle contraction because it

- A. binds to troponin to remove the masking of active sites on actin for myosin
- B. activates the myosin ATPase by binding to it
- C. detaches the myosin head from the actin filament

D. prevents the formation of bonds between the myoin cross bandges  
and the actin filament

**Answer: A**



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**40.** The protoplasmic segment of a striated muscle fibre is termed as

- A. sarcoplasm
- B. sarcomere
- C. neuromere
- D. metamere

**Answer: B**



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41. Which of the following is made up of a single bone in mammal?

- A. Dentary
- B. Hyoid
- C. Upper jaw
- D. All of these

**Answer: B**



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42. Which one of the following is a sesamoid bone

- A. Pelvis
- B. Patella
- C. Pterygoid
- D. Pectoral girdle

**Answer: B**

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**43.** Two of the body parts which do not appear in MRI may be

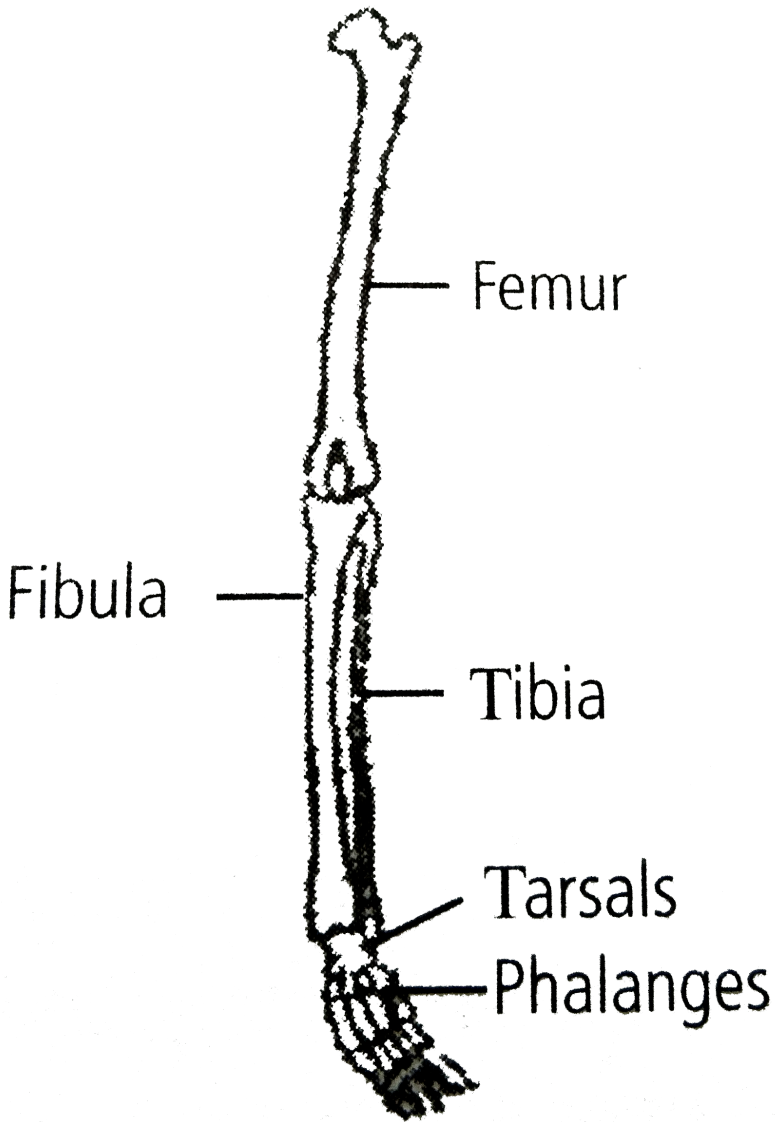
- A. molar teeth and eye lens
- B. scapula and canines
- C. ligaments and ribs
- D. tendons and premolars

**Answer: B**

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**44.** Given diagram shows bone of the left human hindlimb as seen from front. It has certain mistakes in labelling.

Which of the following pairs contain both wrongly labelled bones ?



A. tibia and tarsals

B. femur and fibula

C. fibula and phalanges

D. tatarsals and femur

**Answer: C**



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**45.** The shoulder blade is made of

A. clavicle

B. humerus

C. ilium

D. scapula

**Answer: D**



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46. Which of the following is correctly matched?

- A. Human Renal portal system
- B. Earthworm-Closed circulatory system
- C. Cockroach-Nephridia
- D. None of the above

**Answer: B**



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47. The sensation of fatigue in the muscles after prolonged strenuous physical work is caused by

- A. a decrease in the supply of oxygen
- B. minor wear and tear of muscle fibres
- C. the depletion of glucose
- D. the accumulation of lactic acid

**Answer: D**



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**48.** Sesamoid bone is derived from

- A. Cartilage
- B. Areolar tissue
- C. Tendon
- D. Ligament

**Answer: C**



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

### Type of joint

- (A) Cartilaginous joint
- (B) Pivot joint
- (C) Hinge joint
- (D) Gliding joint

### Example

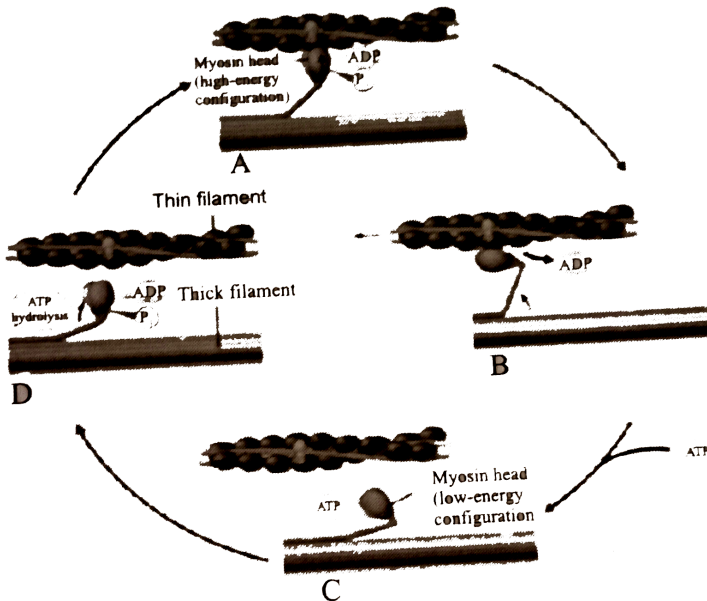
- between frontal and parietal
- between third and fourth cervical vertebrae
- between humerus and pectoral girdle
- between carpals



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50. The given figure represents the cross bridge cycle in skeletal muscle.

What does the step B in the figure represents?



- A. Attachment of myosin head to actin forming cross bridge.
- B. Release of phosphate. Myosin changes shape to pull actin.
- C. Attachment of new ATP to myosin head. The cross bridge detaches.
- D. Splitting of ATP into ADP and Pi. Myosin cocks into its high energy conformation.

**Answer: B**



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**51.** Read the given statements and select the correct option.

Statement 1: Inflammation of a skeletal joint may immobilise the movements of the joint.

Statement 2: This may be caused due to uric acid crystals in the joint cavity and ossification of articular cartilage.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion. \*



B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both the assertion and reason are false.

**Answer: A**

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**52.** Assertion : Ball and socket joints are the most mobile joints.

Reason: Synovial fluid is present here.

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**53.** Read the given statements and select the correct option.

Statement 1: Inflammation of a skeletal joint may immobilise the movements of the joint.

Statement 2: This may be caused due to uric acid crystals in the joint cavity and ossification of articular cartilage.



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