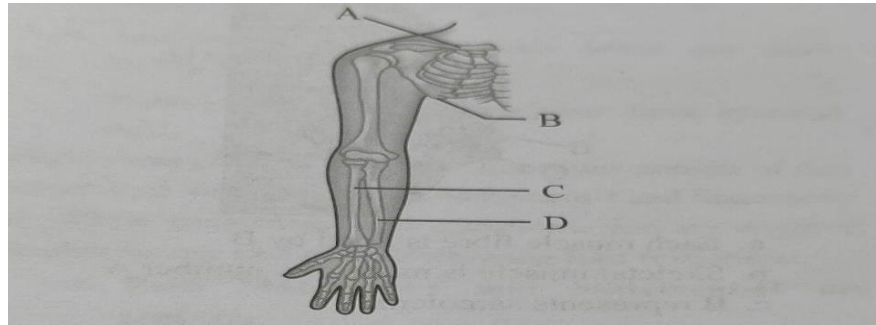




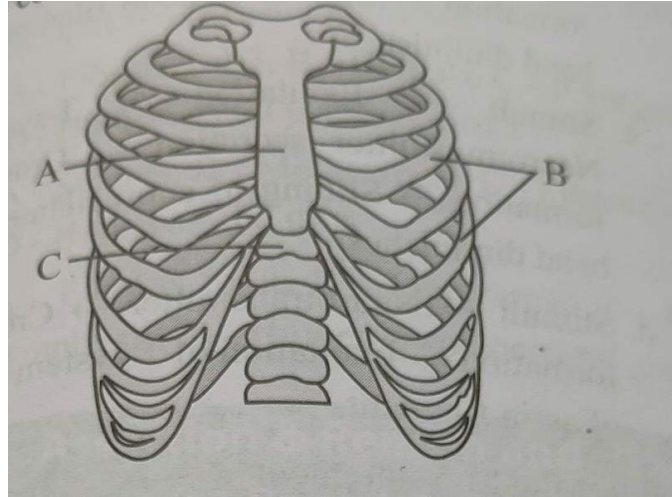
1. Select the correct labelling of bones:



| A | B | C | D |
|---------------|----------|--------|--------|
| a. Scapula | Clavicle | Radius | Ulna |
| b. Clavicle | Scapula | Radius | Ulna |
| c. Coxal bone | Sacrum | Ulna | Radius |
| d. Clavicle | Scapula | Ulna | Radius |



2. Identify A, B and C in the given diagram and choose the correct option.



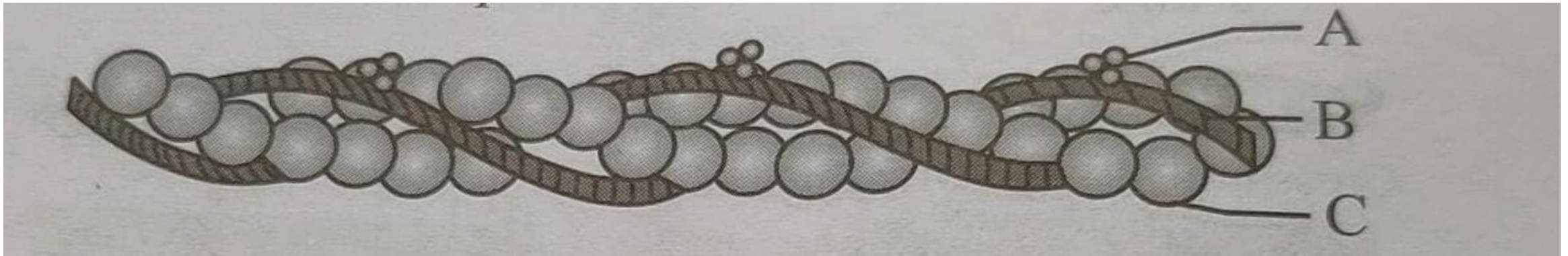
- a. A- Sternum, B-Vertebral column, C- Ribs
- b. A-Ribs, B- Vertebral column, C- Sternum
- c. A-Ribs, B- Sternum, C- Coccyx
- d. A-Sternum, B- Ribs, C- Vertebral column



3. Select the correct statement regarding specific disorder of muscular or skeletal system.
- a. Muscular dystrophy- Age related shortening of muscles
 - b. Osteoporosis- Decrease in bone mass and higher chances of fractures with advancing age.
 - c. Myasthenia gravis- Autoimmune disorder which inhibits sliding of myosin filaments.
 - d. Gout- Inflammation of joints due extra deposition of calcium.



4. The given figure shows an actin (thin) filament. Identify the labelled parts A, B and C and select the correct option.



A

- a. Tropomyosin
- b. Troponin
- c. Troponin
- d. Troponin

B

- Troponin
- Myosin
- Tropomyosin
- Tropomyosin

C

- F- actin
- Tropomyosin
- Myosin
- F- actin



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

| Column I | Column II |
|-----------------------|---|
| a. Tetany | i. Auto immune disorder |
| b. Osteoporosis | ii. Progressive degeneration of skeleton muscle |
| c. Muscular dystrophy | iii. Inflammation of joints |
| d. Arthritis | iv. Rapid spasms in muscle |
| e. Myasthenia Gravis | v. Bone mass decreased |

- (a) a-i, b-ii, c-iii, d- iv, e- v
(b) a-iv, b-v, c-i, d- iii, e-ii
(c) a-iv, b- v, c-ii, d- iii, e-i
(d) a-ii, b-iii, c-i, d- v, e-iv



6. Select the correct option

(2019)

- (a) 8th , 9th and 10th pairs of ribs articulate directly with the sternum.
- (b) 11th and 12th pairs of ribs are connected to the sternum with the help of hyaline cartilage.
- (c) each rib is a flat thin bone and all the ribs are connected dorsally to the thoracic vertebrae and ventrally to the sternum.
- (d) There are seven pairs of vertebrosteral, three pairs of vertebrochondral and two pairs of vertebral ribs.



7.

| Column I | Column II |
|----------------|----------------------------------|
| a. Red fibre | i. Isotropic band |
| b. White fibre | ii. Anisotropic band |
| c. Light band | iii. Less sarcoplasmic reticulum |
| d. Dark band | iv. Anaerobic muscle |

(a) a-ii, b-iv, c-i, d-iii

(c) a-iii, b-iv, c-i, d-ii

(b) a-iv, b-iii, c-ii, d-i

(d) a-i, b-ii, c-iii, d-iv



8. Each sarcomere is formed by

- (a) 2 'A' bands 2 'I' bands
- (b) 2 'A' bands 1 'I' bands
- (c) 1 'A' bands 2 'I' bands
- (d) 1 'A' bands and 2 half 'I' bands

Biology at Ease



9. Arrange the following steps of muscle contraction in a proper sequence:

- a. Binding of Ca^{2+} with troponin
- b. Generation of action potential in sarcolemma
- c. Signal reaches motor end plate
- d. Formation of cross- bridges
- e. Release of Ca^{2+} in sarcoplasm

- a. $\text{C} \rightarrow \text{E} \rightarrow \text{B} \rightarrow \text{A} \rightarrow \text{D}$
- b. $\text{C} \rightarrow \text{B} \rightarrow \text{E} \rightarrow \text{A} \rightarrow \text{D}$
- c. $\text{B} \rightarrow \text{C} \rightarrow \text{A} \rightarrow \text{D} \rightarrow \text{E}$
- d. $\text{B} \rightarrow \text{A} \rightarrow \text{C} \rightarrow \text{D} \rightarrow \text{E}$



10.P.... Joints between the cranial bones is an example of immovable joints in which the two bones fuse with each other byQ..... connective tissue.

| P | Q |
|-----------|---------|
| a. Saddle | Fibrous |
| b. Saddle | Elastic |
| c. Suture | Fibrous |
| d. Suture | Elastic |

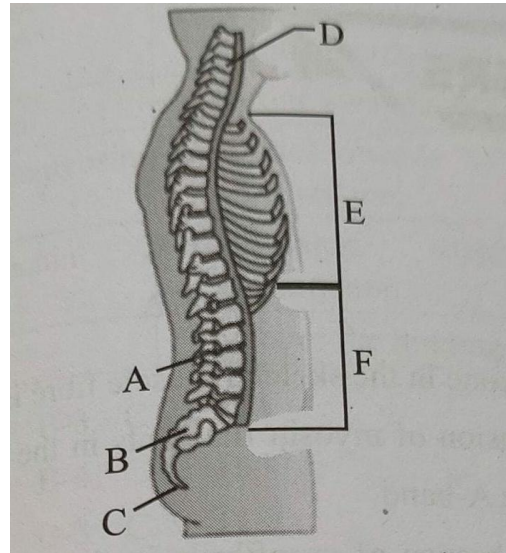


11. Which one of the following is showing the correct sequential order of vertebrae in the vertebral column of human beings?

- a. Cervical - Lumbar - Thoracic – Sacral – Coccygeal
- b. Cervical - Thoracic – Sacral – Lumbar – Coccygeal
- c. Cervical - Sacral – Thoracic - Lumbar – Coccygeal
- d. Cervical - Thoracic - Lumbar - Sacral – Coccygeal



12. Identify the labelling (A-F) correctly



- a. A- Neural spine, B- Coccyx, E- Thoracic vertebra
- b. C- Sacrum, D- Cervical vertebra, F- Lumbar vertebra
- c. B- Sacrum, D- Cervical vertebra, F- Lumbar
- d. A- Inter- vertebral disc , B- Sacrum, E- Lumbar vertebra



13. Match the column

| Column I | Column II |
|--------------------------|--|
| A. Ball and socket joint | 1. Between humerus and pectoral girdle |
| B. Hinge joint | 2. Between carpals and metacarpals |
| C. Gliding joint | 3. Between the carpals |
| D. Saddle joint | 4. Knee joint |

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

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

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

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



14. Match the Columns and choose the correct combination from the options given.

| Column I | | | | Column II | | | |
|-------------------|--|--|--|---|--|--|--|
| 1. Floating ribs | | | | (i) Located between second and seventh ribs | | | |
| 2. Acromion | | | | (ii) Head of the humerus | | | |
| 3. Scapula | | | | (iii) Clavicle | | | |
| 4. Glenoid cavity | | | | (iv) Do not connect with sternum | | | |

1 2 3 4

- a. (i) (iii) (ii) (iv)
- b. (iii) (ii) (iv) (i)
- c. (iv) (iii) (i) (ii)
- d. (ii) (iv) (i) (iii)



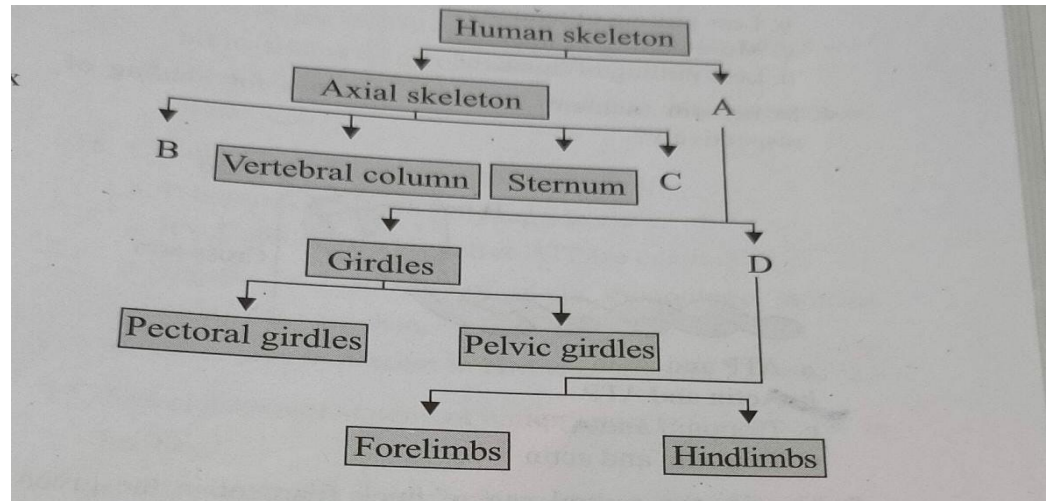
15. Match the following columns

| Column I | Column II |
|-------------------------|--------------------|
| A. Sternum | 1. Synovial fluid |
| B. Glenoid cavity | 2. Vertebrae |
| C. Freely movable joint | 3. Pectoral girdle |
| D. Cartilaginous joint | 4. Flat bones |

- a. A-2 B-1 C-3 D-4
b. A-4 B-3 C-1 D-2
c. A-2 B-1 C-4 D-3
d. A-4 B-1 C-2 D-3



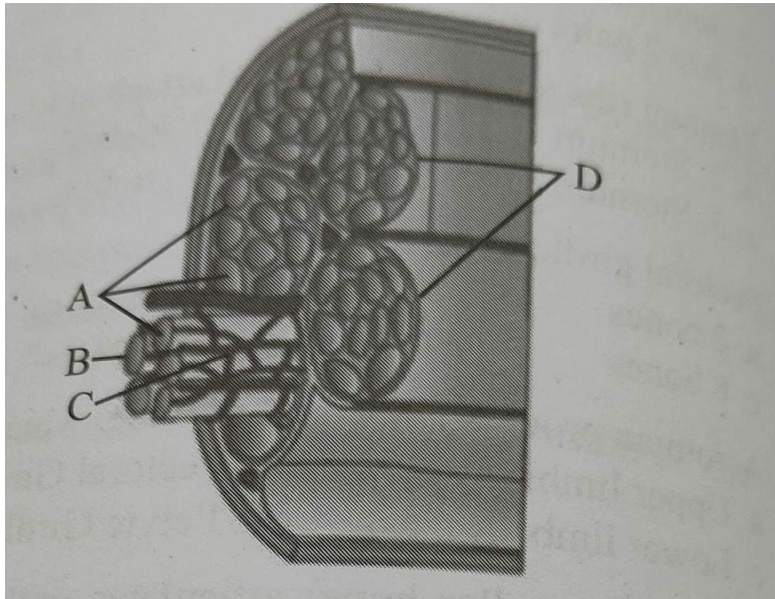
16. Study the following flowchart and fill up the blanks by selecting the correct option.



- | | | | |
|--------------------------|-------|-------|-------|
| a. Thoracic skeleton | Limbs | Skull | Ribs |
| b. Appendicular skeleton | Skull | Ribs | Limbs |
| c. Appendicular skeleton | Limbs | Ribs | Skull |
| d. Lumbar skeleton | Limbs | Skull | Ribs |



17. Anatomical unit of muscle represent by?

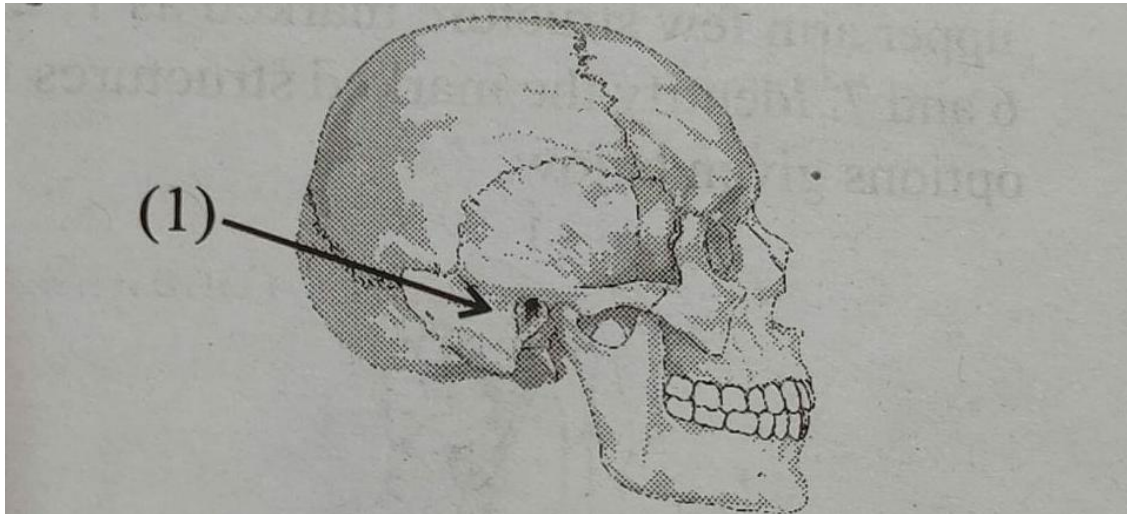


a. C
c. B

b. A
d. D



18. In the given diagram of skull, what does “I” represent?



- (a) Frontal bone
- (c) Occipital bone

- (b) Temporal bone
- (d) Parietal bone



19. Match the name of bone in column-I with their numbers given in column II.

| Column I (Bone) | Column II (Numbers) |
|-----------------------------|------------------------|
| A. Thoracic | I. 8 |
| B. Wrist bone | II. 2 pairs |
| C. False ribs | III. 12 |
| D. Metatarsal | IV. 3 pairs |
| E. Skull (cranial & facial) | V. 26 |
| | VI. 5 |
| | VII. 22 |

a. A-I, B-IV, C-II, D-V, E-III

(b) A-III, B-I, C-IV, D-VI, E-VII

c. A-I, B-VII, C-III, D-V, E-II

(d) A-II, B-V, C-VII, D-I, E-IV



20. Match the following

| A. Fast muscle fibres | 1. Myoglobin |
|-----------------------|---------------------|
| B. Slow muscle fibres | 2. Lactic acid |
| C. Actin filament | 3. Contractile unit |
| D. Sarcomere | 4. I-band |

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



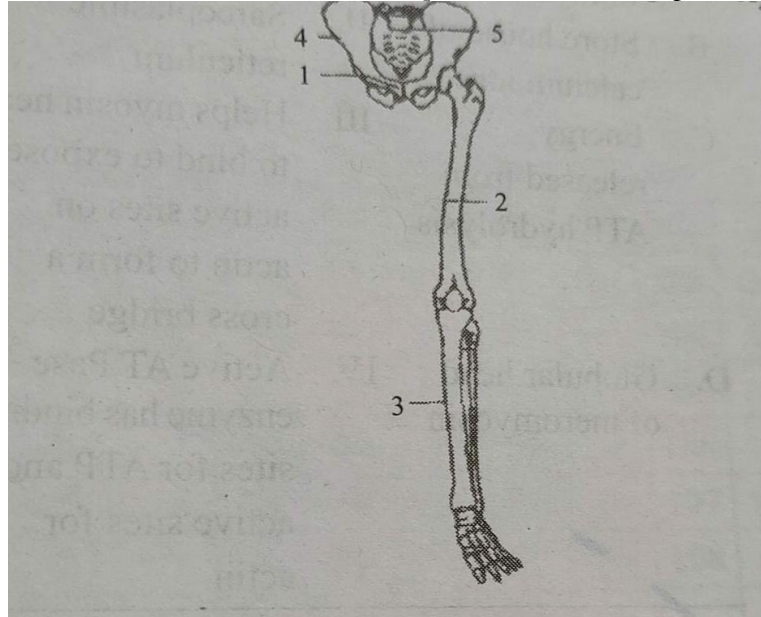
21. Match the Columns-

| A. Ribs are attached to the sternum ventrally and to the vertebrae dorsally | I. True ribs |
|--|--------------------|
| B. Ribs are attached to sternum through cartilage (hyaline) of 7 th rib | II. False ribs |
| C. Ribs are not attached to sternum | III. Floating ribs |

- a. A-I B-II C-III
b. A-I B-III C-II
c. A-II B-I C-III
d. A-III B-II C-I



22. Consider the diagram given below and identify the parts labelled as 1, 2, 3, 4 and 5 respectively.



- a. Femur, Ilium, Tibia, Pubis, and Sacrum
- b. Pubis, Tibia, Femur, Ilium and Sacrum
- c. Ilium, Femur, Tibia, Pubis, and Sacrum
- d. Pubis, Femur, Tibia, Ilium, and Sacrum



23. Match the Column I and II, and choose the correct combination from the options given.

| A. Cranium / Brainbox | I. 22 |
|-------------------------------------|--------------|
| B. Skull (cranial and facial bones) | II. 8 |
| C. Face | III. 14 |
| D. Hind limb | IV. 12 pairs |
| E. Ribs | V. 30 |

- (a) A-I, B-II, C-III, D- V, E- IV
(b) A-II, B-I, C-III, D- V, E- IV
(c) A-I, B-II, C-III, D- IV, E- V
(d) A-V, B-IV, C-III, D- II, E- I



24. Match the Column I and II, and choose the correct combination

| A. Atlas and Axis | I. Cartilaginous joint |
|--------------------------------------|------------------------|
| B. Two parietal bones | II. Fibrous joint |
| C. Two pubic bones | III. Saddle joint |
| D. First carpal and first metacarpal | IV. Pivot joint |

a. A-II; B-I

b. B-II; C-III

c. C-II; D-II

d. D-III; A-IV



Answers

- 1) b.
- 2) d. A-Sternum, B- Ribs, C- Vertebral column
- 3) b. Osteoporosis- Decrease in bone mass and higher chances of fractures with advancing age.
- 4) d. Troponin Tropomyosin F- actin
- 5) (c) a-iv, b- v, c-ii, d- iii, e-I
- 6) (d) There are seven pairs of vertebrosteral, three pairs of vertebrochondral and two pairs of vertebral ribs
- 7) (c) a-iii, b-iv, c-i, d-ii
- 8) (d) 1 'A' bands and 2 half 'I' bands
- 9) a. C → E → B → A → D
- 10) C Suture and fibrous
- 11) d. Cervical - Thoracic - Lumbar - Sacral – Coccygeal
- 12) B- Sacrum, D- Cervical vertebra, F- Lumbar
- 13) a. A-1 B-4 C-3 D-2

- 14) c. (iv) (iii) (i) (ii)
- 15) b. A-4 B-3 C-1 D-2
- 16) b. Appendicular skeleton Skull
Ribs Limbs
- 17) b. A
- 18) (b) Temporal bone
- 19) (b) A-III, B-I, C-IV, D-VI, E-VII
- 20) c. A-2, B-1, C-4, D-3
- 21) a. A-I B-II C-III
- 22) d. Pubis, Femur, Tibia, Ilium, and Sacrum
- 23) (b) A-II, B-I, C-III, D- V, E- IV
- 24) d. D-III; A-IV