

BIOLOGY

BOOKS - FULL MARKS BIOLOGY (TAMIL ENGLISH)

LOCOMOTION AND MOVEMENT

Textbook Evaluation Questions Solved

1. Muscles are derived from

A. ectoderm
B. mesoderm
C. endoderm
D. neuro ectoderm
Answer: B



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2. Muscles are formed by

A. myocytes

- B. leucocytes
- C. osteocytes
- D. lymphocytes



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3. The muscles attached to the bones are called

A. skeletal muscle

- B. cardiac muscle
- C. involuntary muscle
- D. smooth muscles



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4. Skeletal muscles are attached to the bones

by

A. tendon

- B. ligament
- C. pectin
- D. fibrin



- 5. The bundle of muscles fibres is called
 - A. myofibrils
 - B. fascicle

- C. sarcomere
- D. sarcoplasm

Answer: B



- **6.** The pigment present in the muscle fibre to store oxygen is
 - A. myoglobin
 - B. troponin

- C. myosin
- D. actin



- 7. The functional unit of a muscle fibre is
 - A. sarcomere
 - B. sarcoplasm
 - C. myosin

D. actin

Answer: A



- 8. The protein present in the thick filament is
 - A. myosin
 - B. actin
 - C. pectin
 - D. leucin



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- 9. The protein present in the thin filament is
 - A. myosin
 - B. actin
 - C. pectin
 - D. leucin

Answer: B



10. The region between two successive Z-discs is called a

A. sarcomere

B. microtubule

C. myoglobin

D. actin

Answer: A



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11. Each skeletal muscle is covered by

A. epimysium

B. perimysium

C. endomysium

D. hypomysium

Answer: A



12. Knee joint is an example of

A. saddle joint

B. hinge joint

C. pivot joint

D. gliding joint

Answer: B



13. Name of the joint present between the atlas and axis is

A. synovial joint

B. pivot joint

C. saddle joint

D. hinge joint

Answer: B



14. ATPase enzyme needed for muscle contraction is located in

A. actinin

B. troponin

C. myosin

D. actin

Answer: C



15. Synovial fluid is found in

- A. Synovial fluid is found in
- B. spinal cord
- C. immovable joint
- D. freely movable joints

Answer: D



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

- A. gout
- B. myasthenia gravis
- C. osteoporosis
- D. osteomalacia

Answer: A



17. Acetabulum is located in

A. collar bone

B. hip bone

C. shoulder bone

D. thigh bone

Answer: B



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18. Appendicular skeleton is

- A. girdles and their limbs
- B. vertebrae
- C. skull and vertebral column
- D. ribs and sternum



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19. The type of movement exhibits by the macrophages are

- A. flagellar
- B. ciliary
- C. muscular
- D. amoeboid

Answer: D



- **20.** The pointed portion of the elbow is
 - A. acromion process

- B. glenoid cavity
- C. olecranon process
- D. symphysis

Answer: C



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21. Name the different types of movement.



22. Name the filaments present in the sarcomere.



23. Name of the contractile proteins present in the skeletal muscle.



24. When describing a skeletal muscle, what does "striated" mean?



25. How does an isotonic contraction take place?



26. How does an isometric contraction take place?



27. Name the bones of the skull.



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28. Which is the only jointless bone in human body?



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29. List the three main parts of the axial skeleton.



30. How is tetany caused?



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31. How does rigor mortis happen?



32. What are the different types of rib bones that form the rib cage?



33. What are the bones that make the pelvic girdle?



34. List the disorders of muscular system.



35. Define sliding filament theory of muscle contraction.



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36. What are the benefits of regular exercise?



1. Which myofilament has the binding sites for calcium? Name the specific molecule that binds with calcium.



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2. All muscles produce movement, but only skeletal muscle is responsible for locomotion. What is meant by this statement?



3. The pelvie girdle is a heavy, strong girdle. How does its structure reflect its function?



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4. An exhausted student was attending a lecture. After 30 minutes or so, he lost interest and he let go with ia tremendous yawn. To his great distress he couldn't his mouth-his lower jaw was locked open. What do you think would have caused it?





Entrance Exam Questions Solved

1. Which is the longest bone of fore limb?

A. Humerus

B. Femur

C. Carpals

D. Fibular

Answer: A



2. In which bone triangular acromion is present?

A. Radias

B. Scapular

C. Femur

D. Humerus

Answer: C



3. Humerus bone is found:

- A. Radias
- B. Ulna
- C. Arm
- D. Fore arm

Answer: C



4. Hinge joint occurs between:

A. Humerus and radio-ulna

B. Femur and pelvic girdle

C. Humerus and Pectoral girdle

D. Skull and atlas

Answer: A



5. Name the regions of the vertebral column and the number of vertebrae present in them.

- A. 30
- B. 32
- C. 33
- D. 35

Answer: C



6. Number of bones present in an arm is
A. 30

B. 32

C. 35

D. 40



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7. Ribs are attached to:

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

Answer: B



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8. In humans, coccyx is formed by the fusion of vertebrae.

- **A.** 3
- B. 4
- C. 5
- D. 6

Answer: B



- 9. List the bones of the Pectoral girdle.
 - A. Body skeleton

- B. External skeleton
- C. Axial skeleton
- D. Appendiculr skeleton



- **10.** There are.....pairs of floating ribs.
 - A. 6 pairs
 - B. 5 pairs

- C. 3 pairs
- D. 2 pairs



- 11. Ankle joint is:
 - A. Pivot joint
 - B. Ball and socket joint
 - C. Hinge joint

D. Gliding joint

Answer: D



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12. Sarcomere is distance between:

- A. Two I-bands
- B. A and I bands
- C. Two consecutive Z-lines
- D. Z and A bands

Answer: C



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13. Which is the skull bone

A. Atlas

B. Femur

C. Tibia

D. Nasal

Answer: D



14. How many bones are there in appendicular skeleton?

A. 80

B. 120

C. 126

D. 206

Answer: C



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15. Hinge joint occurs between:

A. Elbow and shoulders

B. Elbow and knee

C. Atlas and odontoid process

D. Knee and ankle

Answer: B



16. Number of ball and socket joints present in human body is:

- A. 2
- B. 4
- C. 5
- D. 8

Answer: B



17. Synovial joints is:

A. Ball and socket joint

B. Pivot joint

C. Hinge joint

D. All the above

Answer: D



18. The human cranium is made of ______bones.

A. 8

B. 10

C. 14

D. 20

Answer: A



A. Thoracic region
B. Abdominal region
C. Neck region
D. Hip region
Answer: C
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20. Lumbar vertebrae are located in

19. Cervical vertebrae are located in......

B. Thorax C. Abdominal region Neck D. Hip region **Answer: C Watch Video Solution** 21. Red muscle are rich in A. Myoglobin

A. region

C. Myosin
D. Albumin
Answer: A
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22. Friction is lessened in ball and socket joint by
A. Coelomic fluid

B. Actin

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

Answer: B



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23. What are the bones that make the pelvic girdle?

A. Ischium

- B. Ilium
- C. Pubis
- D. All the above



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24. Extremities of long bones possess cartilage......

A. Calcified

B. Fibrous
C. Elastic
D. Hyaline
Answer: D
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25. Glenoid cavity is found in

A. Pelvic girdle

B. Skull

- C. Pectoral girdle
- D. Sternum

Answer: C



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26. An example of gliding joints is

- A. Humerus and glenoid cavity
- B. Femur and tibio-fibula

- C. Occipital condyle and odontoid process
- D. Zygapophyses of adjacent vertebrae

Answer: B



- **27.** Describe the important steps in muscle contraction.
 - A. Size of A-bands remains the same
 - B. Size of H-zone becomes smaller

- C. Size of I-bands decreases
- D. All the above



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28. Substance that accumulates in a fatigued muscle is

- A. Pyruvic acid
- B. Lactic acid

 $\mathsf{C}.\,CO_2$

D. ADP

Answer: B



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29. Lack of the relaxation between successive stimuli in sustained muscle contraction is known as.......

A. Fatigue

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

Answer: B



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30. Which ion is essential for muscle contraction?

A. Na

- B. K
- C. Ca
- D. Cl_2

Answer: C



- **31.** Ends of long bones are covered by
 - A. Ligaments
 - B. Cartilage

- C. Muscles
- D. Blood cells



- **32.** Acromion is seen in.
 - A. Vertebral column
 - B. Pelvic girdle
 - C. Femur

D. Pectoral girdle

Answer: D



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

A. Maxilla

B. Dentary

C. Mandible

D. Ethmoid

Answer: C



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34. Inter-articular disc occur in

- A. Wall of heart
- B. Wall of liver
- C. Pubic symphysis
- D. In between two vertebrae

Answer: D

35. Acetabulum is part of

A. Pelvic girdle

B. Pectoral girdle

C. Fore arm

D. Upper arm

Answer: A



36. The function unit of contractile system of a striated muscles is

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

Answer: A



37. Fibrous	joints are	present	between	•••••
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- A. Thumb and metatarsal
- B. Humerus and radio-ulna
- C. Bones of skull
- D. Glenoid cavity and pectoral girdle

Answer: C



38. Joint of sternum and ribs is

A. Fibrous joint

B. Angular joint

C. Hinge joint

D. Cartilaginous

Answer: A



39. During strenuous exercise, glucose is converted into

- A. glycogen
- B. pyruvic acid
- C. starch
- D. lactic acid

Answer: D



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

Answer: C



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41. Synovial fluid is secreted by

- A. Blood
- B. Cartilage
- C. Bone
- D. Synovial membrane



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42. Iliac of pelvic girdle is articulated with sacrum for

- A. Bending
 - B. Jumping
 - C. Support
- D. Running

Answer: A



- **43.** Anisotropic band are made up of
 - A. Myosin filaments

- B. Actin filaments
- C. Elastin filaments
- D. Both A and B



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44. Socket in pelvic girdle in which head of femur articulates is formed by fusion of

A. Ischium and pubis

- B. Ilium and pubis
- C. Ilium and ischium
- D. Both a and b

Answer: C



- **45.** The movable skull bone is
 - A. Maxilla
 - B. Vomer

- C. Mandible
- D. All the above



- **46.** Gliding joint occur between.....
 - A. Prezygapophysis and postzygapophysis
 - B. Acetabulum and femur
 - C. Pelvis girdle and femur

D. Humerus and radius

Answer: D



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47. Red muscle are rich in

A. Golgi bodies

B. Mitochondria

C. Lysomomes

D. Ribosomes

Answer: B



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48. Name of the joint present between the atlas and axis is

- A. Pivot
- B. Hinge
- C. Angular
- D. Saddle

Answer: A



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49. The longest bone amongst the following is

•••••

A. radius

B. ulna

C. humerus

D. femur

Answer: D



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50. Joint between metacarpals and phalanges

is

A. Ball and socket

B. Pivot

C. Saddle

D. Hinge

Answer: D



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51. ATPase enzyme needed for muscle contraction is located in

A. actin

B. troponin

C. myosin

D. actin

Answer: C



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52. Make correct pairs from the Column -1 and Column - II.

	Types of S	Synovial Jo	oint Bones Involved
S.No.	Column - I	S.No.	Column -II
P	Ball and socket	(i)	Carpal and metacarpal of thumb
Q	Hinge	(ii)	Atlas and axis
R	Pivot	(iii)	Frontal and parietal
S	Saddle	(iv)	Knee
		(v)	Humerus and pectoral girdle

Answer: D



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53. The protein present in the thick filament is

A. tropomyosin

B. myosin

C. actin

D. troponin

Answer: C



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54. True joints are ...

- A. Synchondroses
- B. Syndesmoses
- C. Synovial
- D. Ball and socket

Answer: A



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55. 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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56. Name the ion responsible for unmasking of active sites for cross-bridge activity during muscle contraction

- A. sodium
- B. potassium
- C. calcium
- D. magnesium

Answer: C



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57. Sliding filament theory can be best explained as

A. when myofilaments slide pass each other actin filaments shorten while myosin filaments do not shorten

- B. actin and myosin filaments shorten and slide pass each other
- C. actin and myosin filaments do not shorten but rather slide pass each other
- D. hen myofilaments slide pass each other myosin filaments shorten while actin filaments do not shorten

Answer: C



58. Osteoporosis is an age related disease of skeletal system, may occur due to

A. decreased level of oestrogen

B. accumulation of uric acid leading to inflammation of joints

C. immune disorder affecting

neuromuscular junction leading to

fatigue

D. high concentration of

 Ca^{++} and Na^{++}

Answer: A



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59. Smooth muscles are

- A. involuntary, fusiform, nonstriated
- B. voluntary, multinucleated, cylindrical
- C. Involuntary, cylindrical, striated
- D. Voluntary, spindle shaped, uninucleated

Answer: A

60. Glenoid cavity articulates

A. scapula with acromion

B. clavicle with scapula

C. humerus with scapula

D. clavicle with acromion

Answer: C



61. Which of the following joints would allow no movements?

A. Fibrous joint

B. cartilaginous joint

C. synovial joint

D. ball and socket joint

Answer: A



62. 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



Additional Questions Solved Fill In The Blanks

1. The sperm cells show movement.



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Additional Questions Solved Choose The Correct Answer

1. Which of the following is not related to skeletal muscle?

B. It is striated
C. It is an involuntary muscle
D. It brings about movement of the organ
Answer: C
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2. The skeletal system is derived from the

A. It is attached to the bone

- B. endoderm
- C. mesoderm
- D. mesoglea

Answer: C



- 3. The cytoplasm of the muscle fibre is called
 - A. sarcolemma
 - B. sarcoplasm

C. ectoplasm

D. endoplasm

Answer: B



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4. The thick filament of muscle fibre is made up of

A. actin

B. myosin

- C. tropomyosin
- D. troponin

Answer: B



- **5.** The cranial bones are
 - A. 22
 - B. 14
 - C. 8

Answer: C



- **6.** Where is the hyoid bone present?
 - A. Cranium
 - B. Appendicular skeleton
 - C. Pectoral girdle
 - D. Base of the buccal cavity

Answer: D



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7. The number of vertebrates is ...

A. 8

B. 12

C. 5

D. 33

Answer: D

8. How many thoracic vertebrates are there?

A. 7

B. 12

C. 5

D. 4

Answer: B



9. Analogy: Rib cage protects: Lungs. Skull protects: ____

A. brain

B. kidney

C. lungs, heart, liver

D. heart

Answer: C



10. The fore arm bones are the	10. T	he f	fore	arm	bones	are	the	•••••
---------------------------------------	--------------	------	------	-----	-------	-----	-----	-------

- A. tibia and fibula
- B. radius and ulna
- C. carpals and metacarpals
- D. tarsal and metatarsals

Answer: B



11. The joint between carpal and metacarpals is	5
••••••	

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

Answer: C



12. Which of the following allows movement in only one direction?

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

Answer: D



13. Which of the following disorders is related to endocrine gland?

- A. Myasthenia gravis
- B. Tetany
- C. Atrophy
- D. Muscular dystrophy

Answer: B



14. Which of the following arthritis is related to protein metabolism?

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

Answer: C



15. Which of the following is deficiency disorder?

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

Answer: D



16. Skeletal muscles are attached to the bones by



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17. The cytoplasm of the muscle fibre is called



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18. is a red coloured respiratory pigment of the muscle fibre.



19. are the granules of stored glycogen.



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20. is the functional unit of the skeletal muscle.



21. The protein present in the thick filament is			
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22. The monomer of the myosin molecule is			
Watch Video Solution			
23. The study of muscle is called			
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24. The junction between the motor neuron and the sarcolemma of the muscle fibre is called the



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25. When nerve impulse reaches a neuromuscular junction, is released



26. In...... contraction the length of the muscle changes but the tension remains constant.



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27. In contraction the length of the muscle does not change but the tension of the muscle changes.



28. The oxidative fibres are called as fibres.
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29. Glycolytic fibres or white muscle fibres lack
••••••
Watch Video Solution
30. The skeletal system is derived from the
Watch Video Solution

31. RBCs are formed in the
Watch Video Solution
32. The large hole in the temporal bone is the
••••••
Watch Video Solution
33. The lower jaw bone is called
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34. Which is the only jointless bone in human body?



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35. The upper jaw is formed of the



36. is the large opening found at the posterior base of the skull.



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37. Through foramen magnum the medulla oblongata continues as the



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38. The first vertebra is called as the



39. The second vertebra is called as the



40. The cranium protects the



41.is the flat bone on the mid ventral line of the thorax.



42. The first seven pairs of ribs are called

•••••



43. The 11th and 12th pairs of ribs are called as ribs.



44. The 8th, 9th and 10th pairs of ribs are calledribs.



45. Rib cage plays a role in



46. is a depression in the pectoral girdle on which the head of the humerus form the shoulder joint.



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47. is situated at the upper end of the ulna which forms the pointed portion of the elbow.



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48. is the largest, longest and strongest bone in the body.



49. The head of femur articulates with theof the pelvis to form the hip joint.

50. The bone forming cells are called
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51. The bone destroying cells are called the
Watch Video Solution
52. cells give rise to the osteoblasts.
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53. The internal bone surfaces are covered with a delicate connective tissue membrane called the



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54. Between the epiphysis and diaphysis.

.....is present.



55. The are points of contact between the bones.



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56. Sutures of the flat skull bones arejoints.



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57. are the freely movable joints.

- 58. 1. Ball and socket joint (i) Shoulder joint
- 2. Pivot joint (ii) Joint between atlas and axis.
- 3. Hinge joint (iii) Elbow joint
- 4. Gliding joint (iv) Joint between sternum and clavicle.



59. Name the type of joint between the following:

- (a) atlas/axis
- (b) carpal/metacarpal of thumb
- (c) between phalanges
- (d) femur/acetabulum
- (e) between cranial bones
- (f) between pubic bones in the pelvic girdle



60. Phyllode is present in



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61. Between humerus and pectoral girdle joint is seen.



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62. is a autoimmune disease.



63. What would happen if the parathyroid gland was removed?



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64. A traumatic pulling of the fibres produces a tear known as



65. is an inflammatory or degenerative disease that damages the joints.



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66. The wearing away of the bone ends of the knees and other movable joints is called



67. The inflammation of the synovial membranes is known as



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



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69. Deficiency of vitamin D causes _____.



70. Deficiency of vitamin D causes _____.



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71. Deficiency of vitamin D causes .



72. increase the breathing and heart rate.



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73. protects us from heart attack.



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Additional Questions Solved Short Answer Questions

1. What is amoeboid movement?
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2. What is ciliary movement?
Watch Video Solution
3. What is flagellar movement?
Watch Video Solution

4. What is muscular movement?
Watch Video Solution
5. What is fascicle?
Watch Video Solution
6. What are myofibrils?
Watch Video Solution

7. What is epimysium?
Watch Video Solution
8. What is perimysium?
Watch Video Solution
9. What is endomysium?
Watch Video Solution

10. Differentiate between the voluntary muscles and involuntary muscles.



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11. What is tendon?



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12. What is myoglobin?



13. What is sarcoplasm? **Watch Video Solution 14.** What are glycosomes? **Watch Video Solution** 15. What is sarcomere?

16. Differentiate thick filaments and thin filaments.



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17. What is meromyosin?



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18. Name the proteins which regulates the contraction of muscles.



19. What is myology?



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20. The oxidative fibres are called as fibres.



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21. What are glycolytic fibres?



22. What is hydrostatic skeleton?



23. Distinguish between exoskeleton and endoskeleton.



24. What is metaphysis? **Watch Video Solution** 25. What is periosteum? **Watch Video Solution** 26. What is endosteum? **Watch Video Solution** 27. What is sternum?



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Additional Questions Solved Give Long Answers

1. Explain the structure of a skeletal muscle fibre.



2. Write the schematic presentation of muscle contraction?



3. Explain the structure of contractile proteins.



4. Explain the types of skeletal muscle fibres.



5. Write the functions of skeletal system.



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6. Explain the bones that form the skull.



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7. Write a short note on the vertebral column.



8. Write a short note on rib cage.



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9. Write a note on Pectoral girdle.



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10. Write a note on the bones of the upper limb.



11. Explain the structure of Pelvic Girdle.



12. Write a note on the bones of lower limb.



13. Explain the structure of a typical long bone.



14. What are joints?



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15. Explain the types of joints.



16. Define:-Myasthenia gravis **Watch Video Solution** 17. Explain muscle fatigue. **Watch Video Solution**

18. Explain muscle atrophy.



19. Write a short note on muscle pull.



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20. Write a short note on muscular dystrophy.



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21. Explain the disorders of skeletal system.



22. Explain the basic categories of exercise and physical activity.

