

BIOLOGY

BOOKS - PRADEEP BIOLOGY (HINGLISH)

STRUCTURAL ORGANIZATION IN ANIMALS

Curiosity Questions

1. Why cross fertilization occurs in earthworm though it is bisexual ?

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2. How many hearts occurs in earthworm ?

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3. Why are earthworm called the friends of the farmers ?

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4. Where are sound receptors located in cockroach ?

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5. Why do frogs croak in the rainy season ?

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6. How does a frog find way to water during breeding season ?

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7. How does frog enable it to protect from its enemies ?



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8. How does frog see all around without neck ?



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Ncert Exercises With Answers

1. Answer in one word or one line

- (i) Give the common name of *Periplaneta americana*.
- (ii) How many spermathecae are found in cockroach ?
- (iii) What is the position of ovaries in cockroach ?
- (iv) How many segments are present in the abdomen of cockroach ?
- (v) Where do you find Malpighian tubules ?



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2. Answer the following

(i) What is the function of nephridia?

(ii) How many types of nephridia are found in earthworm based on their location ?



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3. Draw a labelled diagram of the reproductive organs of an earthworm.



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4. Draw a labelled diagram of alimentary canal of a cockroach.



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5. Distinguish between the following

(a) Prostomium and peristomium

(b) Septal nephridium and pharyngeal nephridium



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6. Match the terms in column I with those in column II:

Column I

Column II

(a) Compound eye

(ii) Phallomere

(b) Septal nephridia

(ii) Cockroach

(c) Open circulatory system

(iii) Earthworm

(d) Typhlosole

(iv) Mosaic vision

(e) Genitalia

(v) Alimentary canal



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7. Mention briefly about the circulatory system of earthworm



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8. Draw a neat diagram of digestive system of frog.



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9. Mention the function of the following

- (a) Ureters in frog
- (b) Malpighian tubules
- (c) Body wall in earthworm



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10. What are the cellular components of blood?



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11. What are the following and where do you find them in animal body

- (a) Chondriocytes
- (b) Axons
- (c) Ciliated epithelium



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12. Describe various types of epithelial tissues with the help of labelled diagrams.



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13. Distinguish between

- (a) Simple epithelium and compound epithelium.
- (b) Cardiac muscle and striated muscle
- (c) Dense regular and dense irregular connective tissues
- (d) Adipose and blood tissue
- (e) Simple gland and compound gland



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14. Mark the odd one in each series :

- (a) Areolar tissue , blood , neuron , tendon.
- (b) R.B.C. , W.B.C. , platelets , cartilage.
- (c) Exocrine , endocrine , salivary gland , ligament



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15. Match the terms in column I with those in column II :

Column I

Column II

(a) Compound epithelium

(i) Bone

(b) Osteocytes

(ii) Skin



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- (d) Adipose and blood tissue
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20. Mark the odd one in each series :

- (a) Areolar tissue , blood , neuron , tendon.
- (b) R.B.C. , W.B.C. , platelets , cartilage.
- (c) Exocrine , endocrine , salivary gland , ligament



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21. Match the terms in column I with those in column II :

Column I

Column II

(a) Compound epithelium

(i) Bone

(b) Osteocytes

(ii) Skin



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Additional Questions Very Short Answer Questions

1. Give the location of male genital apertures in earthworm



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2. Mention the alternate term for clitellum.



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3. Which segments of the adult earthworm lack setae.



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4. Which is the first segment, protomium or peristomium ?



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5. Where are the new segments formed in a growing earthworm ?



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6. Copulation is reciprocal, in earthworm or cockroach.



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7. Where is pulvillus located in the cockroach leg ?





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8. Which is missing in female cockroach, anal cerci or anal styles ?



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9. What are tegmina ?



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10. Write down the zoological name of the common Indian frog.



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11. What does the term 'amphibian mean'.



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12. State the number of segments in earthworm which are covered by a prominent dark band or clitellum.



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13. Where are sclerites present in cockroach ?



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14. How many times do nymphs moult to reach the adult form of cockroach ?



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15. identify the sex of a frog in which sound producing vocal sacs are present .



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16. Name the process by which a tadpole develops into an adult frog .



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17. What is the scientific term given to earthworm's body segments ?



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18. Name the tissues which lack intercellular material.



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19. Give the location of brush-bordered cuboidal epithelium.



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20. What is mucous membrane?



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21. Name the epithelia the cells of which contain basal granules.



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22. Cite one example each of exocrine, endocrine and heterocrine glands.



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23. Which muscle tissue is self-excitatory and which is voluntary ?



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24. What are mast cells ? State their 2 functions.



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25. Give two characteristics of the mammalian erythrocytes.

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26. What is diapedesis ?

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27. Name the type of epithelium that lines the urinary bladder.

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28. Mention two special properties of nervous tissue.

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29. Name the materials of which the white and yellow fibres are formed.



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30. What is the function of tendons ?



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31. Where is ossein found?



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32. What do the fibroblasts synthesize ?



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33. Name the tissues in which the matrix is not produced by the cells it contains.



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34. Name the types of agranulocytes.

 [Watch Video Solution](#)

35. Which proteins form the primary and secondary myofilaments ?

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36. Name the counterpart of the platelets in a nonmammalian blood.

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37. Which chemical is secreted by the axon endings into the synaptic cleft ?

 [Watch Video Solution](#)

38. What is haemoglobin ?

 [Watch Video Solution](#)

39. Name the layer of the skin that reduces water exchange.

 [Watch Video Solution](#)

40. Name the tissue which contains Haversian canals.

 [Watch Video Solution](#)

41. Name the pigment found in red muscle fibres.

 [Watch Video Solution](#)

42. Name the blood corpuscle which is smallest in size.



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43. A muscle fibre tapers at both ends and does not show striations ,
Name the muscle fibre.



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44. Name the tissues which lack intercellular material.



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Additional Questions Short Answer Questions

1. Copulation is reciprocal in earthworm. What does it mean ?



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2. What is the location of spermathecal pores in Pheretima?



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3. How many locomotory appendages a cockroach has ?

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4. Name the mouth parts of cockroach.

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5. What is amplexus ? Where is it found ?

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6. In what respects frog's tadpole resembles a fish?

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7. Match the items given in column I with given items (one or more) of column II.

Column I

- (i) Vermicomposting
- (ii) Pharyngeal nephridia
- (iii) Integumentary nephridia
- (iv) Cockroach
- (v) Amplexus

Column II

- (a) Ectonephric
- (b) Malpighian tubules
- (c) Earthworm
- (d) 13-chambered heart
- (e) Enteronephric
- (f) Frog



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8. Give two identifying features of an adult male frog.



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9. The digestive system of frog is made of the following parts , Arrange them in an order beginning from mouth .

Mouth, oesphagus , buccal cavity , stomach , intestine , cloaca , rectum, cloacal aperture .



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10. Give the location of hepatic caecae in a cockroach . What is their function ?

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11. Give the functions of setae in earthworm.

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12. Describe the structure of a tarsal of cockroach's leg.

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13. Give a brief account of compound eyes of cockroach.

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14. Describe the manus or pes of frog.

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15. Why does frog prefer to live in or near water ?

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16. Answer in one word or one line:

- (i) Give the scientific name of earthworm.
- (ii) Give the common name of *Periplaneta americana*.
- (iii) How many spermatheca are found in cockroach ?
- (iv) What is the position of ovaries in cockroach ?
- (v) What is the name of tracheal opening in cockroach ?
- (vi) How many segments are present in the abdomen of cockroach ?
- (vii) Name the part of alimentary canal of frog where the gullet opens.
- (viii) Where do you find Malpighian tubules ?

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17. Answer the following:

(i) What is the function of nephridia ?

(ii) Give three difference between frogs and toads.

(iii) What do you understand by open type of circulatory system ? Give a suitable example.

(iv) How many types of nephridia are found in earthworm based on their location ?



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18. Write the names of appendages associated with the head of a cockroach.



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19. Draw a labelled diagram of alimentary canal of a cockroach.



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20. Draw a labelled diagram of the reproductive organs of an earthworm.

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21. Give a note on organs of excretion in a frog.

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22. Add suitable words in the gaps of the following sentences-

- (i) Pheretima Is the common Indian earthworm.
- (ii) Number of segments in earthworm's body varies from to
- (iii) Male genital apertures of earthworm lie on the under surface of segment
- (iv) The scientific name of common cockroach is
- (v) Gena lies below the
- (vii) An alternative term for arolium is

(viii) Metamorphosis occurs in the life history of

(ix) Excretory organs of earthworm are

(x) Earthworm and are nocturnal animals



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23. Frogs are beneficial for mankind, justify the statement .



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24. Why earthworm is called the friend of farmer ?



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25. Why nephridia in earthworm that are basically similar in structure classified into three types ? Mention the names of each .



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26. Describe the structure of a sarcomere with the help of a labelled diagram.

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27. What are the two types of fibres of

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28. What is tessellated epithelium ? Where is it found?

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29. How do the exocrine and endocrine glands differ? What are heterocrine glands ?

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30. Draw a labelled diagram of a neuron.

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31. Where are the following proteins found ? Chondrin, Tubulin, Ossein, Reticulin, Meromyosin.

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32. Name the two layers of the basement membrane and the perichondrium.

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33. How do the osteoblasts, osteocytes and osteolasts differ ?

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34. List the four types of bones with regard to their mode of formation.

Give one example of each type.



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35. Write the characteristics of epithelial tissues.



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36. Name the tissues which perform the following functions :

(i) Haemopoiesis (ii) Formation of antibodies (iii) Coagulation

(iv) Locomotion (v) Transmission of message (vi) Protection against mechanical shocks

(vii) Clearing dead cells.



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37. Write whether the following statements are true or false :

- (a) Nodes of Ranvier occur in non-myelinated nerve fibres.
- (b) Hyaline cartilage stores fat.
- (c) Single unit smooth muscle contract rhythmically.
- (d) Transitional epithelium prevents loss of blood.
- (e) Fibrin is associated with blood clotting.



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38. Match the terms in column A with those of column B

Column A

Column B

- | | |
|---------------------------|-------------------------------|
| (a) Stratified epithelium | (i) Nerve impulse |
| (b) Exocrine gland | (ii) Erythrocyte |
| (c) <i>Polycythemia</i> | (iii) Transitional epithelium |
| (d) Nodes of Ranvier | (iv) Megakaryocyte |
| (e) Dendrite | (v) Tear |
| (f) Blood coagulation | (vi) Collagen fibres |
| (g) Blood platelet | (vii) Phagocytosis |
| (h) Macrophage | (viii) Skin |
| (i) Urinary bladder | (ix) Actin |
| (j) White fibrous tissue | (x) Trachea |
| (k) I-band | (xi) Prothrombin |
| | (xii) Myelinated nerve fibre |

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39. Mark the odd one in each series :

(i) Neurilemma, axon, apendyma, dendrite, I band

(ii) Blood, plasma, lymph, immunoglobulin, cyton

(iii) Gastric gland, tear gland, pituitary, salivary gland

(iv) A band , I band, Z band , sarcolemma, Schwann cells.

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40. Fill in the blanks :

(i) bands of muscle fibres are made up of protein myosin while bands are composed of actin.

(ii) cells help in blood clotting.

(iii) sheath is found in myelinated nerve fibres.

(iv) Hyaline cartilage has matrix and

(v) The large spherical or oval cells present in adipose tissue are

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41. Mark the odd word in each group :

- (i) Sarcoplasm, sarcomere, neurilemma, sarcolemma.
- (ii) Cyton, actin, axon, dendron.
- (iii) Prothrombinase, prothrombin, fibrinogen, heparin.
- (iv) Adrenal glands, sweet glands, milk glands, oil glands.
- (v) Chondrin, ossein, myosin, plasma.



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42. Mark the odd one in each series :

- (a) Areolar tissue, blood, neuron, tendon.
- (b) Prothrombin, heparin, fibrinogen, thromboplastin.
- (c) Salivary gland, gastric gland, tear gland , thyroid gland.
- (d) Neurolemma, dendrite, Z band , myelin.



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43. Name the different cell junctions found in tissues

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44. What is a tissue?

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45. Name the various types of simple epithelia. Describe any one of these.

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46. Give an account of the keratinised stratified squamous epithelium.

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47. Mention the outstanding characteristic of connective tissues. Give their outline classification also.

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48. How do the primary and secondary myofilaments of a sarcomere differ ?

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49. Name the various constituents of nervous tissue. Describe a neuron.

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50. Give three differences between cilia and microvilli.

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51. Name the different types of cells found in the areolar tissue. Give the function of each.



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52. How are the erythrocytes structurally adapted for their role in the animal body ?



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53. What is a connective tissue ? Differentiate between tendon and liagment.



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54. What are the cellular components of blood?



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55. Describe the different types of muscle fibres.



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56. Describe various types of epithelial tissues with the help of labelled diagrams.



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57. What are the following and where do you find them in animal body ?

- (a) Chondrocytes (b) Thrombocytes (c) Nissl's granules (d) Nodes of Ranvier (e) Haversian system
(f) Axons (g) A-band (h) Heparin (i) Thromboplastin (j) Ciliated epithelium



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58. Fill in the blanks :

(i) A tendon attaches a to a

(ii) Pseudostratified epithelium lines the tract while transitional epithelium lines the tract.

(iii) Dark bands of muscle fibres are made of the protein While light bands are composed of

(iv) Nerve impulse comes to the cell body of a neuron along the and goes away from the cell body along the (v) Lacunae of bones house while lacunae of cartilage contain

(vi) Tendon contains bundles of fibres and rows of cells between them.



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59. Note the relationship between the first two words and suggest a suitable word for the fourth place.

(i) Muscle cell : sarcoplasm : : nerve cell

(ii) Cartilage : chondrin : : bone

(iii) Tendons : white fibres : : ligaments...

(iv) Bone sheath : periosteum : : marrow cavity lining

(v) Urinary tubule : cuboidal epithelium : : Bowman's capsule.....

(vi) Bilobed nucleus : basophil : : multilobed nucleus



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60. Mention whether the following statements are true or false.

(i) Striated muscle is indefatigable.

(ii) Fibroblasts store fat in adipose tissue.

(iii) Serum globulin acts as an antibody.

(iv) Urinary bladder is lined by a stratified epithelium.

(v) Nissl's granules are found in the granulocytes. (vi) abnormal rise in

RBC count is called polycythemia.



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61. Write whether the following statements are true or false :

(a) Stratified squamous epithelium covers moist surfaces like buccal cavity.

- (b) Fibroblasts store fat in the adipose tissue.
- (c) Serum albumin acts as antibody to help in body defence.
- (d) Transitional epithelium prevents loss of water from the blood to the urine.
- (e) Blood platelets are formed from macrophages.
- (f) Nodes of Ranvier occur in nonmyelinated nerve fibres.
- (g) Single-unit smooth muscle fibres may contract automatically and rhythmically.
- (h) Sarcomere is a segment of striated muscle fibre between consecutive Z bands.



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62. Why are blood, bone and cartilage called connective tissue ?



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63. Why are neurons called excitable cells ? Mention special features of the membrane of the neuron .



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64. Write the appropriate type of tissues in column B according to the functions mentioned in column A.

Column A

- (a) secretion and absorption
- (b) Protective covering
- (c) Linking and supporting framework

Column B

- (i)
- (ii)
- (iii).....



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65. what is special about tissue present in the heart?



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66. Describe the structure of a sacromere with the help of a labelled diagram.



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67. What are the two types of fibres of

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- (i) Haemopoiesis (ii) Formation of antibodies (iii) Coagulation
- (iv) Locomotion (v) Transmission of message (vi) Protection against mechanical shocks
- (vii) Clearing dead cells.



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77. Write whether the following statements are true or false :

- (a) Nodes of Ranvier occur in non-myelinated nerve fibres.
- (b) Hyaline cartilage stores fat.
- (c) Single unit smooth muscle contracts rhythmically.

(d) Transitional epithelium prevents loss of blood.

(e) Fibrin is associated with blood clotting.



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78. Match the terms in column A with those of column B

Column A

Column B

(a) Stratified epithelium

(i) Nerve impulse

(b) Exocrine gland

(ii) Erythrocyte

(c) *Polycythemia*

(iii) Transitional epithelium

(d) Nodes of Ranvier

(iv) Megakaryocyte

(e) Dendrite

(v) Tear

(f) Blood coagulation

(vi) Collagen fibres

(g) Blood platelet

(vii) Phagocytosis

(h) Macrophage

(viii) Skin

(i) Urinary bladder

(ix) *Act* ∈

(j) White fibrous tissue

(x) Trachea

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(xi) Prothrombin

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79. Mark the odd one in each series :

(i) Neurilemma, axon, apendyma, dendrite, I band

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80. Fill in the blanks :

(i) bands of muscle fibres are made up of protein myosin while bands are composed of actin.

(ii) cells help in blood clotting.

(iii) sheath is found in myelinated nerve fibres.

(iv) Hyaline cartilage has matrix and

(v) The large spherical or oval cells present in adipose tissue are



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81. Mark the odd word in each group :

(i) Sarcoplasm, sarcomere, neurilemma, sarcolemma.

(ii) Cyton, actin, axon, dendron.

(iii) Prothrombinase, prothrombin, fibrinogen, heparin.

(iv) Adrenal glands, sweat glands, milk glands, oil glands.

(v) Chondrin, ossein, myosin, plasma.



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82. Mark the odd one in each series :

(a) Areolar tissue, blood, neuron, tendon.

(b) Prothrombin, heparin, fibrinogen, thromboplastin.

(c) Salivary gland, gastric gland, tear gland , thyroid gland.

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83. Name the different cell junctions found in tissues



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93. Name the tissues where the following structures occur : Canalliculi

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95. What are the cellular components of blood?

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96. Describe the different types of muscle fibres.



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97. Describe various types of epithelial tissues with the help of labelled diagrams.



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98. What are the following and where do you find them in animal body ?

- (a) Chondrocytes (b) Thrombocytes (c) Nissl's granules (d) Nodes of Ranvier (e) Haversian system
- (f) Axons (g) A-band (h) Heparin (i) Thromboplastin (j) Ciliated epithelium



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(iii) Tendons : white fibres : : ligaments...

(iv) Bone sheath : periosteum : : marrow cavity lining

(v) Urinary tubule : cuboidal epithelium : : Bowman's capsule.....

(vi) Bilobed nucleus : basophil : : multilobed nucleus

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101. Mention whether the following statements are true or false.

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(iii) Serum globulin acts as an antibody.

(iv) Urinary bladder is lined by a stratified epithelium.

(v) Nissl's granules are found in the granulocytes. (vi) abnormal rise in RBC count is called polycythemia.

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102. Write whether the following statements are true or false :

(a) Stratified squamous epithelium covers moist surfaces like buccal cavity.

(b) Fibroblasts store fat in the adipose tissue.

(c) Serum albumin acts as antibody to help in body defence.

(d) Transitional epithelium prevents loss of water from the blood to the urine.

(e) Blood platelets are formed from macrophages.

(f) Nodes of Ranvier occur in nonmyelinated nerve fibres.

(g) Single-unit smooth muscle fibres may contract automatically and rhythmically.

(h) Sarcomere is a segment of striated muscle fibre between consecutive Z bands.

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103. Why are blood, bone and cartilage called connective tissue ?

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104. Why are neurons called excitable cells ? Mention special features of the membrane of the neuron .

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105. Write the appropriate type of tissues in column B according to the functions mentioned in column A.

Column A

- (a) secretion and absorption
- (b) Protective covering
- (c) Linking and supporting framework

Column B

- (i)
- (ii)
- (iii).....

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106. what is special about tissue present in the heart?

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Additional Questions Long Answer Questions

1. What do you know about the habital of earthworm ? Discuss its habits.

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2. Give an account of the external characters of earthworm.

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3. Discuss the economic importance of earthworm.

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4. Describe the external features of the head or thorax of cockroach.

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5. Give an account of the mouth parts of cockroach.

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6. Tabulate differences between the male and the female cockroach.



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7. Give an account of locomotion in earthworm or cockroach.

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8. Describe the leg of a cockroach.

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9. Briefly discuss the natural history of frog.

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10. Give an account of the external characters of frog.

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11. Tabulate differences between frog and toad.



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12. Give an account of alimentary canal of earthworm or cockroach.



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13. Describe the nervous system of any nonchordate you have studied.



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14. The circulatory system of cockroach



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15. Describe the digestive system of frog.



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16. Discuss the respiratory system or circulatory system of frog.

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17. Give an account of nervous system of frog.

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18. Give an account of reproductive system of male frog.

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19. Describe the reproductive organs of female frog.

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20. Describe the alimentary canal of an earthworm and its interactions with mankind.

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21. Draw a neat and well labelled diagram of male reproductive system of a frog.

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22. Explain the digestive system cockroach with the help of a labelled sketch .

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23. Write down the functions of epithelial tissues or of blood.

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24. Describe the following tissues : Columnar epithelium, Transitional epithelium, Areolar tissue, Cardiac muscle.

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25. Give an account of the histology of hyaline cartilage and decalcified bone.

 [Watch Video Solution](#)

26. Write a note on erythrocytes or leucocytes.

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27. Discuss the histological structure of striated muscle.

 [Watch Video Solution](#)

28. Describe the structure of nerve fibres.

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29. What are the following things ? Where do you find them in the animal body ?

(i) Osteocytes , (ii) Haemoglobin , (iii) Canaliculi , (iv) Brush-bordered columnar epithelium , (v) Singleunit smooth muscle , (vi) Lacunae.

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30. How does blood get coagulated on coming out from an injured vessel ? How is coagulation normally prevented in an uninjured vessel ?

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31. make a labeled sketch of the transverse section of a mammalian bone.

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32. What are the sources of RBCs in embryo and adult man ? What is the size of RBC in man ? State the haemoglobin content in adult human male and female. Why RBC cannot out Krebs cycle ?

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33. Fill in the blanks with suitable words :

- (i) Plasma contains about% water.
- (ii) RBCs have a life of aboutdays.
- (iii) A normal healthy man has about RBCs per cubic millimetre of blood.
- (iv) RBC count decreases in
- (v) A cubic mm. of blood has about..... WBCs.

(vi) WBC count increases in case of

(vii) There are about platelets per cubic mm. of blood.

(viii) Blood clotting is initiated by

(ix) Plasma without fibrinogen is called

(x) checks blood clotting in uninjured vessels.

(xi) Blood does not clot in a person suffering from

(xii) Process of formation of blood corpuscles in the bone marrow is called

(xiii) RBCs have that transports oxygen.

(xiv) WBCs act as and of the body.

(xv) Lymph is blood minus RBCs , platelets and



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34. Match the items listed in column I with appropriate items given in column II :

Column I

- (a) Perichondrium
- (b) Basal granules
- (c) Pseudostratified epithelium
- (d) Plasma
- (e) Matrix
- (f) Neurilemma
- (g) Striated myofibril
- (h) Haemopoietic tissue
- (i) Mesothelium
- (j) Microvilli

Column II

- (a) Blood
- (b) Connective tissue
- (c) absorption
- (d) absorption
- (e) Trachea
- (f) Cartilage
- (g) Bone marrow
- (h) Body cavity lining
- (i) Multinucleate
- (j) Cilia



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35. Match the terms in Column 1 with those in Column II :

Column I

- (a) Stratified keratinised squamous epithelium
- (b) Exocrine gland
- (c) Polycythemia
- (d) Node of Ranvier
- (e) Dendrite
- (f) Blood coagulation
- (g) Blood platelets
- (h) Macrophage
- (i) Urinary bladder
- (j) White fibrous tissue
- (k) I band

Column II

- (i) Nerve impulse
- (ii) Erythrocyte
- (iii) Transitional epit
- (iv) Megakaryocyte
- (v) Tear gland
- (vi) Collagen fibres
- (vii) Phagocytosis
- (viii) Skin
- (ix) Actin
- (x) Trachea
- (xi) Prothrombin
- (xii) Myelinated nerv

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Analytical Questions With Answers

1. (i) How old is the evolutionary history of cockroach ?

(ii) Which adaptations in cockroach help them in their survival ? List few of them.



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2. (a) Why are earthworms regarded as farmer's friend ? Give two reason.

(b) Which habit of the earthworm helps in increasing the soil fertility ?



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3. (a) Why are earthworms not seen on sunny days ?

(b) Where can you locate earthworms ?



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4. (i) Which term is used for tiny, coiled tubules known to perform function of excretion and osmoregulation in earthworm ?

(ii) What are enteronephric and ectonephric nephridia ?



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5. Which two species of cockroaches are commonly found in India ? How do these two species differ from each other ?

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6. Does the frog resort to hibernation or aestivation in unfavourable weather ?

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7. What is the role of vocal sacs ? Do you find them in male or female frog /

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8. (a) Why cross fertilization occurs in earthworm though it is bisexual ?
(b) What is the main food of earthworm ?

(c) Name the small pills, consisting of undigested matter and soil, that are passed out by earthworm.

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9. (a) What is meant by metameric segmentation ?

(b) The clitellum represents which segments in earthworm ?

(c) How many pairs of spermathecal pores are there in earthworm ? What are their functions ?

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10. What is the function of the following in earthworm ?

(a) gizzard (b) typhlosole (c) nephridia

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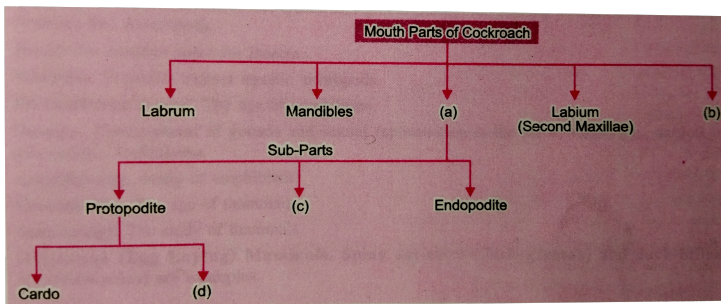
11. (a) Name the hard plates (exoskeleton) that cover the entire body of cockroach .What is their composition and functions

(b) List various mouth parts of cockroach .

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12. Carefully study the incomplete flow chart of mouth parts of cockroach.

Fill in the blanks (a),(b),(c) and (d).



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13. (a) How many sclerites cover each abdominal segment in cockroach ?

Name them.

(b) How many terga and sterna are there in the abdomen of cockroach ?

(c) How many sterna are visible in the male and female abdomen of cockroach ? What is the role of 7th , 8th and 9th abdominal sterna in female cockroach?

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14. What are the respiratory organs in cockroach ? By how many apertures they open out ? Name these apertures and mention their position in the body.

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15. (a) What type of circulatory system is there in cockroach ?

(b) How many , chambered heart helps in the circulation of blood in cockroach's body ?

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16. (a) Why do frogs croak in the rainy season ?

(b) What is the term used for the sexual embrace of male and female frogs in which eggs and sperms are discharged in water ?

(c) what is meant by 'metachrosis' ?

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17. (a) What is the significance of brow spot in the median line between the eyes of the frog ?

(b) Cloacal aperture in frog is an outlet for what ?

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18. What special structure are present at the free surface of the epithelial cells ? Also mention the sites where epithelial cells such structures occur.

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19. Where are B-and T-lymphocytes formed and mature in human body ?

Also mention the site of formation of R.B.Cs in the foetus and after birth.

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20. How would you differentiate between lymph and blood based on their constitution ?

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21. (a) Which cells are termed as the structural and functional units of the nervous tissue ?

(b) Which cells act as supporting and packing cells in the brain, spinal cord and ganglia ?

(c) What is the function of neurosecretory cells of the hypothalamus of the vertebrate brain ?

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22. (a) What are visceral bones ? Give atleast two examples.

(b) What are membrane bones ? Give two examples.



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23. (a) Which is the hardest tissue in the body ? How ?

(b) What is meant by dried bone and decalcified bone ?



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24. Why do old people get bone fractures easily as compared to young ?



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25. (a) Which is the most widely distributed connective tissue in the animal body ? What is its composition ?

(b) List atleast three types of cells present in the matrix of such connective tissue with one function of each.

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26. What category of glands would you observe in the following cases :

(i) Sweat glands in the mammalian skin (ii) Sweat glands present in the armpits

(iii) Salivary glands (iv) Milk glands of humans

(v) Oil glands in human skin (vi) Glands present in crypts of lieberkuhn

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27. (i) Which type of epithelium forms epidermis of the skin in land vertebrates ?

(ii) What is the function of its horny layers ? How such horny layers develop ?

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28. (a) Which epithelium consists of thin, flat, disc-like cells closely fitted like tiles in a floor, and alternatively called pavement epithelium ?

(b) The cells of the epithelium are about as tall as wide, having rounded nucleus in the centre of the cell. It may be secretory or non-secretory.

Name such an epithelium.

(c) Which kind of epithelium would you find in

(i) Buccal cavity (ii) Skin in land vertebrates.



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29. (a) Give one example each of the following :

(i) Merocrine glands (ii) Apocring glands (iii) Holocrine glands.

(b) How these glands differ from each other ?



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30. (a) While studying the structure of a striated muscle, you come across following terms:

(i) Membrane of Krause (Z band), (ii) Henson's line (H Zone), (iii) Sarcomere. Explain these terms.

(b) Name the proteins that comprise primary myofilaments and secondary myofilaments.

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31. (a) Name the most abundant type of animal tissue in the body. From where it arises ?

(b) Differentiate between loose and dense connective tissues. Give examples of each.

(c) Name specialized connective tissue.

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32. (a) Which protein forms (i) white fibres and (ii) yellow fibres of the areolar tissue.

(b) List different types of cells present in the areolar tissue. Also, mention their functions (s).



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33. (a) Name the fat storing loose connective tissue. Where is it found ?

(b) Where is this tissue found in whales, camels and frog ?



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34. (a) List important difference between tendons and ligaments.

(b) Which protein forms dense, hard matrix of bone ?

(c) What is meant by decalcified bone ?

(d) Name two long bones present in human body. These bones have a cavity in the centre. What is it called ?



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35. (a) Which two vascular connective tissues are present in human body ? What are their special features?

(b) How many R.B.Cs and W.B.Cs an average adult human being possesses ? List the terms used when their number increases or decreases excessively.



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36. (a) Draw a diagram of nerve cell and label its parts.

(b) In which direction the impulse travels in dendrites and axon ?



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37. (a) What is the average life span of R.B.Cs ?

(b) Name the iron-containing pigment present in R.B.Cs. Also, name its protein and nonprotein parts.

(c) Name the largest leucocytes present in the blood. What function they perform ?

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Practice Questions Multiple Choice Questions

1. The female genital pore of *Pheretima posthuma* located upon which segment ?

A. 14th

B. 16th

C. 18th

D. 15th

Answer: A



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2. In frog heart there are cardiac muscles which consist of fibres called

A. Purkinje fibres

B. myonemes

C. telodendria

D. columnae carnae

Answer: A



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3. In which segment in earthworm is the clitellum present ?

- A. 16th segment
- B. 17th-19th segment
- C. 14th-16th segment
- D. 5th-6th segment

Answer: C

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4. The colour of the body in earthworm is brown due to presence of

- A. porphyrin
- B. haemoglobin
- C. blood
- D. haemocyanin

Answer: A

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5. Stink gland is found in

- A. 4th and 5th terga of cockroach
- B. 5th and 6th terga of cockroach
- C. 5th and 6th sterna of cockroach
- D. 4th and 5th sterna of cockroach

Answer: B



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6. Salivary gland in earthworm is found in

- A. dorsal wall of buccal cavity
- B. ventral wall of buccal cavity
- C. pharyngeal wall

D. none of the above

Answer: C



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7. Bidder's canal occurs in

A. testes of frog

B. kidney of frog

C. kidney of rabbit

D. both (a) and (c)

Answer: B



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8. Body of earthworm is divided into how many similar segments which are metameres or somites?

- A. 60-120
- B. 100-120
- C. 80-120
- D. 120 or more

Answer: B



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9. Earthworms have no skeleton but during burrowing, the anterior end becomes turgid and acts as a hydraulic skeleton. It is due to

- A. gut peristalsis
- B. setae
- C. coelomic fluid

D. blood

Answer: C



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10. Which one of the following is the true description about an animal concerned

A. rat-left kidney is slightly higher in position than the right one

B. cockroach -10 pairs of spiracles (2 pairs on thorax and 8 pairs on abdomen)

C. earthworm-the alimentary canal consists of a sequence of pharynx, oesophagus , stomach , gizzard and intestine

D. frog-body divisible into three regions-head, neck and trunk

Answer: B



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11. The number of abdominal segments in male and female cockroach is

A. 10,10

B. 9,10

C. 8,10

D. 9,9

Answer: A



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12. In earthworm the characteristic internal median fold of dorsal wall of the intestine called typhlosole is present in

A. 5 to 9 segments

B. 9 to 14 segments

C. 26 to 35 segments

D. 15 to last segment

Answer: C

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13. Select the correct order of classification of *Rana tigrina* upto genus

A. chordata , craniata , amphibia , gnathostomata, rana

B. chordata , craniata , gnathostomata , amphibia, rana

C. chordata , amphibia, gnathostomata, craniata , tigrina

D. chordata, craniata, amphibia , gnathostomata, tigrina

Answer: B

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14. The cloaca in frog is a common chamber for the urinary tract, reproductive tract and

- A. alimentary canal
- B. portal system
- C. hepatic portal vessels
- D. notochord

Answer: A



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15. Which of the following animals is unisexual

- A. tapeworm
- B. leech
- C. sponge
- D. cockroach

Answer: D



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16. In Frog anterior abdominal vein is formed by union of

- A. femoral vein
- B. sciatic vein
- C. renal vein
- D. pelvic vein

Answer: D



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17. In the earthworm

- A. integumentary and pharyngeal nephridia are exonephric

B. Pharyngeal and septal nephridia are enteronephric

C. pharyngeal and septal nephridia are exonephric

D. integumentary and septal nephridia are enteronephric

Answer: B



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18. In the nymphal stage of cockroach the juvenile hormone is secreted by

A. corpora cardiaca

B. corpora allata

C. prothoracic gland

D. intercerebral gland cells

Answer: A



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19. Cockroach mainly excretes

- A. uric acid
- B. urea
- C. ammonia
- D. amino acid

Answer: A



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20. In earthworm gizzard is found in

- A. 8-10 segment
- B. 8th segment
- C. 27th segment
- D. 8-11 segment

Answer: B



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21. Heart of cockroach is

A. 13 chambered

B. 29 chambered

C. 9 chambered

D. 6 chambered

Answer: A



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22. Stink gland is found in

A. 4th and 5th terga of cockroach

- B. 5th and 6th terga of cockroach
- C. 5th and 6th sterna of cockroach
- D. 4th and 5th sterna of cockroach

Answer: C



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23. If a live earthworm is pricked with a needle on its outer surface without damaging its gut, the fluid that comes out is

- A. slimy mucus
- B. excretory fluid
- C. coelomic fluid
- D. haemolymph

Answer: C



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24. Uric acid is the chief nitrogenous component of the excretory products of :

- A. frog
- B. man
- C. earthworm
- D. cockroach

Answer: D

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25. The clitellum is a distinct part in the body of earthworm, it is found in

- A. Segments 13-14-15
- B. Segment 14-15-16
- C. Segments 12-13-14

D. Segment 15-16-17

Answer: B



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26. Setae help in locomotion in earthworm but not uniformly present in all the segments. Select among the following that represents setae

A. 1 st segment

B. last segment

C. Clitellar segment

D. 20th-22nd segment

Answer: D



Watch Video Solution

27. Which one of the following statement is true for cockroach ?

- A. The number of ovarioles in each ovary are ten.
- B. The larval stage is called caterpillar
- C. Anal style are absent in females
- D. They are ureotelic

Answer: C



Watch Video Solution

28. Match the followings and choose the correct answer

- | | |
|------------------------------------|---|
| A. Hermaphrodite | (i) Produces blood cells and haemoglobin |
| B. Direct development | (ii) Testis and ovary in the same animal |
| C. Chemoreceptor | (iii) Larval form absent |
| D. Blood gland in earthworm | (iv) Sense of chemical substances |

Options :

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

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

C. A-I,B-iii,C-ii,D-iv

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

Answer: A



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29. Match the following with reference to cockroach and choose the correct option

- | | | |
|------------------|-------|---------------------------------|
| A. Phallomere | (i) | Chain of developing ova |
| B. Gonopore | (ii) | Bundles of sperm |
| C. Spermatophore | (iii) | Opening of the ejaculatory duct |
| D. Ovarioles | (iv) | The external genitalia |

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

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

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

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

Answer: B



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30. Match the followings and choose the correct answer

A. Touch

(i) Nasal epithelium

B. Smell

(ii) Foramen magnum

C. Cranial nerves

(iii) Sensory papillae

D. Medulla oblongata

(iv) Peripheral nervous system

A. A-iii,B-I,C-ii,D-iv

B. A-ii,B-I,C-iv,D-iii

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

D. A-iii,B-I,C-iv,D-ii

Answer: D



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31. In which of the following organisms, the excretory organs are correctly stated?

- A. Humans-Kidneys , sebaceous glands and tear glands.
- B. Earthworm-Pharyngeal , integumentary and septal nephridia
- C. Cockroach-Malpighain tubules and enteric caeca
- D. Frog-Kidneys , skin and buccal epithelium

Answer: B



[Watch Video Solution](#)

32. Cockroaches can climb smooth or steep surfaces due to the adhesive pads found on the torses of their legs. They are called

- A. Pretarsus
- B. Arolium

C. Plantulae

D. Tibia

Answer: B



Watch Video Solution

33. Which one of the following species of earthworm is not recommended for vermicomposting

A. *Perionyx excavatus*

B. *Pheretima posthuma*

C. *Eudrilus eugeniae*

D. *Eisenia fetidae*

Answer: B



Watch Video Solution

34. Skin is an accessory organ of respiration in

- A. Humans
- B. frogs
- C. rabbits
- D. lizards

Answer: B



[Watch Video Solution](#)

35. V cranial nerve of frog is

- A. facial
- B. olfactory
- C. trigeminal
- D. vagus

Answer: C



Watch Video Solution

36. The lateral hearts in earthworms have

- A. four pairs of valves and are situated in segments 7 and 9.
- B. four pairs of valves and are situated in segments 6 and 8.
- C. three pairs of valves and are situated in segments 8 and 10.
- D. two pairs of valves and are situated in segments 6 and 11.

Answer: A



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37. In mouthparts of Cockroach, galea and lacinia from part of

- A. mandible

B. maxilla

C. labium

D. labrum

Answer: B



Watch Video Solution

38. One very special feature in the earthworm *pheretima* is that

A. Fertilization of eggs occurs inside the body

B. the typhlosole greatly increases the effective absorption area of the digested food in the intestine

C. S-shaped setae embeded in the integument are the defensive weapons used against the enemies

D. it has a long dorsal tubular heart

Answer: B



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39. Which of the following is correct for the common cockroach ?

- A. Malpighian tubules are excretory organs projecting out from the colon
- B. Oxygen is transported by haemoglobin in blood
- C. Nitrogenous excretory product is urea
- D. Food is ground by mandible and gizzard

Answer: D



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40. Consider the following four statements ($A - D$) related to the common frog *Rana tigrina* and select the correct option stating which ones are true (T) and which ones are false (F)

Statements :

- (A) On dry land it would die due to lack of O_2 of its mouth is forcibly kept closed for a few days
- (B) It has four-chambered heart
- (C) ON dry land it turns uricotelic from ureotelic
- (D) Its life-history is carried out in pond water

A. $A \ B \ C \ D$
 $T \ F \ F \ T$

B. $A \ B \ C \ D$
 $T \ T \ F \ F$

C. $A \ B \ C \ D$
 $F \ F \ T \ T$

D. $A \ B \ C \ D$
 $F \ T \ T \ F$

Answer:



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41. Which one of the following structures in Pheretima is correctly matched with its function

A. clitellum - secretes cocoon

- B. gizzard - absorbs digested food
- C. setae - defence against predators
- D. typhlosole - storage of extra nutrients

Answer: A



Watch Video Solution

42. The nerve chord in earthworm originates from

- A. supra- pharyngeal ganglia and has a fused pair of ganglia in each segment from the 3rd to the last
- B. supra- pharyngeal ganglia and has a fused pair of ganglia in each segments from the 4th to the last
- C. sub- pharyngeal ganglia and has fuse pair of ganglia in each segment from the 5th to the last

D. sub - pharyngeal ganglia and has fused pair of ganglia in each segment from the 6th to the last

Answer: C



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43. Select the correct statement from the ones given below with respect to *Periplaneta americana*.

- A. Nervous system located dorsally , consists o segmentally arranged ganglia joined by a pair of longitudinal connectives.
- B. Males bear a pair of short thread like anal styles
- C. There are 16 very long Malpighain tubules present at the junctions of midgut and hindgut .
- D. Grinding of food is carried out only by the mouth parts.

Answer: B

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44. Pheretima and its close relatives derive nourishment from

- A. sugarcane roots
- B. decaying fallen leaves and soil organic matter
- C. soil insects
- D. small pieces of fresh fallen leaves of maize etc.

Answer: B

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45. Compared to those of humans, erythrocytes of Frog are

- A. without nucleus but with haemoglobin
- B. nucleated and with haemoglobin
- C. very much smaller and fewer

D. nucleated and without haemoglobin

Answer: B



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46. What is common between humans and adult frog

- A. Four chambered heart
- B. Internal fertilisation
- C. Nucleated RBCs
- D. Ureotelic mode of excretion

Answer: D



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47. What external changes are visible after the last moult of a cockroach nymph

- A. Anal cerci develop
- B. Both fore wings and hind wings develop
- C. Labium develops
- D. Mandibles become harder

Answer: B



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48. Which one of the following correctly describes the location of some body parts in the earthworm Pheretima

- A. Four pair of spermathecae in 4 - 7 segments
- B. One pair of ovaries attached at inter-segmental septum of 14th and 15th segments

C. Two pairs of testes in 10th and 11th segments

D. Two pair of accessory glands in 16 - 18th segments

Answer: C



Watch Video Solution

49. The body cells in cockroach discharge their nitrogenous waste in the haemolymph mainly in the form of

A. Calcium carbonate

B. Ammonia

C. Potassium urate

D. Urea

Answer: C



Watch Video Solution

50. Which of the following features is not present in *Periplaneta americana*?

- A. Indeterminate and radial cleavage during embryonic development
- B. Exoskeleton composed of N- acetylglucosamine
- C. Metamerically segmented body
- D. Schizocoelom as body cavity

Answer: A



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51. In male cockroaches, sperms are stored in which part of the reproductive system

- A. Seminal vesicles
- B. Mushroom glands
- C. Testes

D. Vs deferens

Answer: A



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52. Frog's heart when taken out of the body continues to beat for sometime

Select the best option from the following statements

- (A) Frog is a poikilotherm
- (B) Frog does not have any coronary circulation
- (C) Heart is myogenic in nature
- (D) Heart is autoexcitable

A. only (4)

B. (1) and (2)

C. (3) and (4)

D. only (3)

Answer: C



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53. Which of the following features is used to identify a male cockroach from a female cockroach

- A. Presence of a boat - shaped sternum on the 9th abdominal segment
- B. Presence of caudal styles
- C. Forewings with darker tegmina
- D. Presence of anal cerci

Answer: B



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54. The cartilage present between the invertebrate disc is

- A. Elastic
- B. Hyaline
- C. Fibrous
- D. Calcified

Answer: A

 [Watch Video Solution](#)

55. Epithelium lining tongue is

- A. Squamous keratinized
- B. Pseudostratified epithelium
- C. Simple cuboidal
- D. Squamous nonkeratinized

Answer: B

 [Watch Video Solution](#)

56. Pseudostratified epithelium is found in

- A. Oesophagus
- B. Urinary tract
- C. Respiratory tract
- D. Kidney

Answer: C



Watch Video Solution

57. Mast cells of connective tissue contain

- A. Heparin and histamine
- B. Heparin and calcitonin
- C. Serotonin and melanin

D. Vasopressin and relaxin

Answer: A



Watch Video Solution

58. Volkman's canals occur in

A. Bone

B. Cartilage

C. Liver

D. Internal ear

Answer: A



Watch Video Solution

59. Choroid plexus is a network of

A. lymph vessels

B. nerves

C. muscle fibres

D. capillaries

Answer: B



[Watch Video Solution](#)

60. Choose the odd pair out in the following :

A. areolar connective tissue - collagen

B. epithelium - keratin

C. neuron - melanin

D. muscle fibre - actin

Answer: C



[Watch Video Solution](#)

61. Thousand of years old mummies are still in condition as they were before due to non- destruction of

- A. yellow elastin fibres
- B. white elastin fibres
- C. collagen fibres
- D. veins

Answer: A



Watch Video Solution

62. Mast cells secrete :-

- A. haemoglobin
- B. heparin
- C. myoglobin

D. histamine

Answer: D



Watch Video Solution

63. Areolar connective tissue joins

A. bones with bones

B. fat body with muscles

C. integument with muscles

D. bones with muscles

Answer: C



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64. The type of epithelial cells which line the inner surface of Fallopian tubes, bronchioles and small bronchi are known as

- A. squamous epithelium
- B. columnar epithelium
- C. ciliated epithelium
- D. cubical epithelium

Answer: C



[Watch Video Solution](#)

65. Which of the following is a transparent tissue ?

- A. tendon
- B. fibrous cartilage
- C. hyaline cartilage
- D. all of these

Answer: C



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66. Tendons and ligaments are specialized types of

- A. nervous tissue
- B. muscular tissue
- C. epithelial tissue
- D. fibrous connective tissue

Answer: D



Watch Video Solution

67. Which of the following is secreted by mast cells ?

- A. histamine

B. heparin

C. serotonin

D. all of these

Answer: D



Watch Video Solution

68. Tendons and ligaments are specialized types of

A. nervous tissue

B. epithelial tissue

C. muscular tissue

D. fibrous connective tissue

Answer: D



Watch Video Solution

69. Which is a transparent tissue ?

- A. tendon
- B. ligament
- C. fibrous cartilage
- D. hyaline cartilage

Answer: D



Watch Video Solution

70. Non-keratinised stratified epithelium occurs in

- A. vagina, cervix and buccal cavity
- B. vagine, cervix, buccal cavity and anus
- C. vagina and cervix
- D. buccal cavity and anus.

Answer: A



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71. Keratinized dead layer of skin is made of

- A. stratified squamous
- B. simple cuboidal
- C. simple columnar
- D. stratified columnar

Answer: A



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72. The average diameter of red blood corpuscles of man is

- A. $7.2\mu m$

B. $8.1\mu m$

C. $9.2\mu m$

D. $10.3\mu m$

Answer: A



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73. Match the columns :

Column I	Column II
1. Cuboidal	(a) Epidermis of skin
2. Ciliated	(b) Inner lining of blood vessels
3. Columnar	(c) Inner surface of gall bladder
4. Squamous	(d) Inner lining of fallopian tube
5. Keratinized	(e) Lining of pancreatic duct

A. 1-E, 2-D, 3-B, 4-C, 5-A

B. 1-C, 2-D, 3-E, 4-B, 5-A

C. 1-E, 2-D, 3-C, 4-B, 5-A

D. 1-C, 2-D, 3-E, 4-A, 5-B

Answer: C



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74. Which one of the following is wrongly matched ?

- A. myosin-contractile protein
- B. tendon-connective tissue
- C. smooth muscle - involuntary muscle
- D. troponin-fibrous protein

Answer: D



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75. Schwann cells are associated with

- A. nervous tissue

B. skeletal muscle

C. cardiac muscle

D. connective tissue

Answer: A



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76. The process of formation of R.B.Cs is called

A. poikegenesis

B. erythropoiesis

C. leucogenesis

D. none of these

Answer: B



Watch Video Solution

77. Cells that maintain marrow cells are called

- A. osteocytes
- B. chondrocytes
- C. osteociasts
- D. none of these

Answer: A



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78. Area where the myelin sheath is absent in the nerve fibre is called

- A. Schwann cells
- B. Schwann nodes
- C. Nissl granules
- D. Node of Ranvier

Answer: D



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79. The cell junctions called tight, adhering and gap junctions are found in :

- A. Neural tissue
- B. Muscular tissue
- C. Connective tissue
- D. Epithelial tissue

Answer: D



Watch Video Solution

80. The epithelial tissue present on the inner surface of bronchioles and fallopian tubes is

A. Squamous

B. Cuboidal

C. Glandular

D. Ciliated

Answer: D



Watch Video Solution

81. Which one of the following types of cell is involved in making of the inner walls of large blood vessels ?

A. Cuboidal epithelium

B. Columnar epithelium

C. Squamous epithelium

D. Stratified epithelium

Answer: C

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82. To which one of the following categories does adipose tissue belong ?

- A. Epithelial
- B. Connective
- C. Muscular
- D. Neural

Answer: B

 [Watch Video Solution](#)

83. Which of the following is not a connective tissue ?

- A. Bone
- B. Cartilage
- C. Blood

D. Muscles

Answer: D



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84. Match the following and choose the correct option

- | | | |
|----------------------------|-------|-------------|
| A. Adopose tissue | (i) | Nose |
| B. Stratified epithelium | (ii) | Blood |
| C. Hyaline cartilage | (iii) | Skin |
| D. Fluid connective tissue | (iv) | Fat storage |

A. A-I, B-ii, C-iii, D-iv

B. A-iv, B-iii, C-I, D-ii

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

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

Answer: B



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85. The kind of epithelium which forms inner walls of blood vessels is

- A. Squamous epithelium
- B. Cuboidal epithelium
- C. Columnar epithelium
- D. Ciliated columnar epithelium

Answer: A



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86. The haemoglobin content per 100 ml of blood of normal healthy human adult is

- A. 12 – 16 g
- B. 25 – 30 g
- C. 17 – 20 g
- D. 5 – 11 g

Answer: A



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87. The outer covering of cartilage is called

A. Peritonium

B. Periosteum

C. Endosteum

D. Perichondrium

Answer: D



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88. The ciliated columnar epithelial cells in humans are known to occur in

A. Eustachian tube and stomach lining

B. bronchioles and Fallopian tube

C. bile duct and oesophagus

D. Fallopian tube and urethra

Answer: B



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89. The cells lining the blood vessels belongs to the category of :

A. smooth muscle tissue

B. squamous epithelium

C. columnar epithelium

D. connective tissue

Answer: B



[Watch Video Solution](#)

90. The types of muscles present in our :

- A. heart is involuntary and unstriated smooth muscle
- B. intestine is striated and involuntary
- C. thigh is striated and voluntary
- D. upper arm is smooth muscle and fusiform in shape

Answer: C



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91. Which salt predominates in bone matrix

- A. Sodium chloride
- B. Magnesium phosphate
- C. Calcium phosphate
- D. Sodium carbonate

Answer: C



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92. The falciform ligament in man connects

- A. liver with diaphragm
- B. lungs with diaphragm
- C. stomach with diaphragm
- D. liver with stomach

Answer: A



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93. Which one is the most abundant protein in the animal world?

- A. Trypsin

B. Hemoglobin

C. Collagen

D. Insulin

Answer: C



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94. Supportive skeletal structures in the human external ears and nose tip are of

A. ligament

B. areolar tissue

C. bone

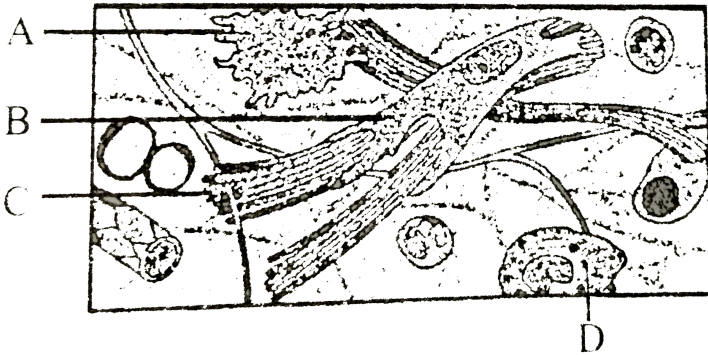
D. cartilage

Answer: D



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95. Given below is the diagrammatic sketch of a certain type of connective tissue. Identify the parts labelled A, B, C and D, and select the right option about them.



- A. *A* *B* *C* *D*
 Macrophage Fibroblast Collagen fibres Mast cell
- B. *A* *B* *C* *D*
 Mast cell Macrophage Fibroblast Collagen fibres
- C. *A* *B* *C* *D*
 Macrophage Collagen fibres Fibroblast Mast cell
- D. *A* *B* *C* *D*
 Mast cell Collagen fibres Fibroblast Macrophage

Answer: A

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96. Which one of the following human organs is often called the "graveyard" of RBCs?

- A. Gall bladder
- B. Kidney
- C. Spleen
- D. Liver

Answer: C



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97. Macromolecule chitin is a

- A. phosphorus containing polysaccharide
- B. sulphur containing polysaccharide
- C. simple polysaccharide
- D. nitrogen containing polysaccharide

Answer: D



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98. Choose the correctly matched pair

- A. Tendon - Specialized connective tissue
- B. Adipose tissue - Dense connective tissue
- C. Areolar tissue - Loose connective tissue
- D. Cartilage - Loose connective tissue

Answer: C



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99. Choose the correctly matched pair :

- A. Inner lining of salivary ducts- Ciliated epithelium

B. Moist surface of buccal cavity - Glandular epithelium

C. Tubular parts of nephrons - Cuboidal epithelium

D. Inner surface of bronchioles-squamous epithelium

Answer: C



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100. Haversian canal in the bone of mammals is connected by small blood vessel canal called

A. Schlemm's canal

B. Volkmann's canal

C. Portal capillaries

D. Sinuses

Answer: B



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101. Node of Ranvier occurs where

- A. nerve is covered with myelin sheath
- B. neurilemma is discontinuous
- C. neurilemma and myelin sheath are discontinuous
- D. myelin sheath is discontinuous

Answer: D



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102. Which one of the following human organs is often called the "graveyard" of RBCs?

- A. Gall bladder
- B. Kidney
- C. Spleen

D. Liver

Answer: C



[Watch Video Solution](#)

103. Which type of tissue correctly matches with its location ?

- | | Tissue | Location |
|----|-------------------------|-------------------|
| A. | Areolar tissue | Tendons |
| B. | Transitional epithelium | Tip of nose |
| C. | Cuboidal epithelium | Lining of stomach |
| D. | Smooth muscle | Wall of intestine |

Answer: D



[Watch Video Solution](#)

104. Smooth muscles are

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

Answer: A

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105. Myelin sheath is produced by

or

Myelin of the nerve fibres of the central nervous system is produced and maintained by

- A. astrocytes and Schwann cells
- B. oligodendrocytes and osteoclasts
- C. osteoclasts and astrocytes
- D. Schwann cells and oligodendrocytes

Answer: D



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106. The hepatic portal vein drains blood to liver from

- A. stomach
- B. kidneys
- C. intestine
- D. heart

Answer: A::C



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107. Nissl bodies are mainly composed of

- A. proteins and lipids

B. DNA and RNA

C. nucleic acids and SER

D. free ribosomes and RER

Answer: D



[Watch Video Solution](#)

108. The cartilage present between the intervertebral disc is

A. Elastic

B. Hyaline

C. Fibrous

D. Calcified

Answer: A



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109. Epithelium lining tongue is

- A. Squamous keratinized
- B. Pseudostratified epithelium
- C. Simple cuboidal
- D. Squamous nonkeratinized

Answer: B



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110. Pseudostratified epithelium is found in

- A. Oesophagus
- B. Urinary tract
- C. Respiratory tract
- D. Kidney

Answer: C



Watch Video Solution

111. Mast cells of connective tissue contain

- A. Heparin and histamine
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112. Volkman's canals occur in

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B. Cartilage

C. Liver

D. Internal ear

Answer: A



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113. Choroid plexus is a network of

A. lymph vessels

B. nerves

C. muscle fibres

D. capillaries

Answer: B



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114. Choose the odd pair out in the following :

A. areolar connective tissue - collagen

B. epithelium - keratin

C. neuron - melanin

D. muscle fibre - actin

Answer: C



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115. Thousands of years old mummies are still in their condition as they were before due to the non-destruction of

A. yellow elastin fibres

B. white elastin fibres

C. collagen fibres

D. veins

Answer: A



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116. Mast cells secrete :-

A. haemoglobin

B. heparin

C. myoglobin

D. histamine

Answer: D



Watch Video Solution

117. Areolar connective tissue joins

A. bones with bones

- B. fat body with muscles
- C. integument with muscles
- D. bones with muscles

Answer: C



[Watch Video Solution](#)

118. The type of epithelial cells which line the inner surface of fallopian tubes, bronchioles and small bronchi are known as

- A. squamous epithelium
- B. columnar epithelium
- C. ciliated epithelium
- D. cubical epithelium

Answer: C



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119. Which of the following is a transparent tissue ?

- A. tendon
- B. fibrous cartilage
- C. hyaline cartilage
- D. all of these

Answer: C



[Watch Video Solution](#)

120. Tendons and ligaments are specialized types of

- A. nervous tissue
- B. muscular tissue
- C. epithelial tissue
- D. fibrous connective tissue

Answer: D



Watch Video Solution

121. Which of the following is secreted by mast cells ?

- A. histamine
- B. heparin
- C. serotonin
- D. all of these

Answer: D



Watch Video Solution

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- A. nervous tissue

B. epithelial tissue

C. muscular tissue

D. fibrous connective tissue

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Watch Video Solution

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- C. vagina and cervix
- D. buccal cavity and anus.

Answer: A



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125. Keratinized dead layer of skin is made of

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- C. simple columnar
- D. stratified columnar

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126. The average diameter of red blood corpuscles of man is

A. $7.2\mu m$

B. $8.1\mu m$

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4. Squamous	(d) Inner lining of fallopian tube
5. Keratinized	(e) Lining of pancreatic duct

A. 1-E, 2-D, 3-B, 4-C, 5-A

B. 1-C, 2-D, 3-E, 4-B, 5-A

C. 1-E, 2-D, 3-C, 4-B, 5-A

D. 1-C, 2-D, 3-E, 4-A, 5-B

Answer: C



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B. tendon-connective tissue

C. smooth muscle - involuntary muscle

D. troponin-fibrous protein

Answer: D



[Watch Video Solution](#)

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[Watch Video Solution](#)

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- A. osteocytes
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- C. osteoclasts
- D. none of these

Answer: A



Watch Video Solution

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- C. Nissl granules
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Answer: D



Watch Video Solution

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- D. Epithelial tissue

Answer: D

 [Watch Video Solution](#)

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- B. Cuboidal
- C. Glandular
- D. Ciliated

Answer: D

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135. Which one of the following types of cell is involved in making of the inner walls of large blood vessels'?

- A. Cuboidal epithelium
- B. Columnar epithelium
- C. Squamous epithelium
- D. Stratified epithelium

Answer: C

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136. To which one of the following categories does adipose tissue belong?

- A. Epithelial
- B. Connective

C. Muscular

D. Neural

Answer: B



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137. Which one of the following is not a connective tissue

A. Bone

B. Cartilage

C. Blood

D. Muscles

Answer: D



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138. Match the following and choose the correct option

- | | | |
|----------------------------|-------|-------------|
| A. Adipose tissue | (i) | Nose |
| B. Stratified epithelium | (ii) | Blood |
| C. Hyaline cartilage | (iii) | Skin |
| D. Fluid connective tissue | (iv) | Fat storage |

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

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

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

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

Answer: B



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139. The kind of epithelium which forms inner walls of blood vessels is

A. Squamous epithelium

B. Cuboidal epithelium

C. Columnar epithelium

D. Ciliated columnar epithelium

Answer: A



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140. The haemoglobin content per 100 ml of blood of normal healthy human adult is

A. 12 – 16 g

B. 25 – 30 g

C. 17 – 20 g

D. 5 – 11 g

Answer: A



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141. The outer covering of cartilage is called

- A. Peritonium
- B. Periosteum
- C. Endosteum
- D. Perichondrium

Answer: D



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142. The ciliated columnar epithelial cells in humans are known to occur in

- A. Eustachian tube and stomach lining
- B. bronchioles and Fallopian tube
- C. bile duct and oesophagus
- D. Fallopian tube and urethra

Answer: B



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143. The cells lining the blood vessels belongs to the category of :

- A. smooth muscle tissue
- B. squamous epithelium
- C. columnar epithelium
- D. connective tissue

Answer: B



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144. The type of muscles present in our

- A. heart is involuntary and unstriated smooth muscle

B. intestine is striated and involuntary

C. thigh is striated and voluntary

D. upper arm is smooth muscle and fusiform in shape

Answer: C



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145. Which one of the following salts predominates in bone matrix?

A. Sodium chloride

B. Magnesium phosphate

C. Calcium phosphate

D. Sodium carbonate

Answer: C



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146. The falciform ligament in man connects

- A. liver with diaphragm
- B. lungs with diaphragm
- C. stomach with diaphragm
- D. liver with stomach

Answer: A



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147. Which one is the most abundant protein in the animal world

- A. Trypsin
- B. Hemoglobin
- C. Collagen
- D. Insulin

Answer: C



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148. Supportive skeletal structures in the human external ears and nose tip are of

- A. ligament
- B. areolar tissue
- C. bone
- D. cartilage

Answer: D



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149. Which one of the following human organs is often called the "graveyard" of RBCs?

A. Gall bladder

B. Kidney

C. Spleen

D. Liver

Answer: C



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150. Macromolecule chitin is

A. phosphorus containing polysaccharide

B. sulphur containing polysaccharide

C. simple polysaccharide

D. nitrogen containing polysaccharide

Answer: D



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151. Choose the correctly matched pair

- A. Tendon - Specialized connective tissue
- B. Adipose tissue - Dense connective tissue
- C. Areolar tissue - Loose connective tissue
- D. Cartilage - Loose connective tissue

Answer: C



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152. Choose the correctly matched pair :

- A. Inner lining of salivary ducts- Ciliated epithelium
- B. Moist surface of buccal cavity - Glandular epithelium
- C. Tubular parts of nephrons - Cuboidal epithelium

D. Inner surface of bronchioles-squamous epithelium

Answer: C



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153. Haversian canal in the bone of mammals is connected by small blood vessel canal called

- A. Schlemm's canal
- B. Volkmann's canal
- C. Portal capillaries
- D. Sinuses

Answer: B



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154. Node of Ranvier occurs where

- A. nerve is covered with myelin sheath
- B. neurilemma is discontinuous
- C. neurilemma and myelin sheath are discontinuous
- D. myelin sheath is discontinuous

Answer: D



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155. Which one of the following human organs is often called the "graveyard" of RBCs?

- A. Gall bladder
- B. Kidney
- C. Spleen
- D. Liver

Answer: C



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156. Which type of tissue correctly matches with its location ?

- | | | |
|----|-------------------------|-------------------|
| A. | Tissue | Location |
| | Areolar tissue | Tendons |
| B. | Tissue | Location |
| | Transitional epithelium | Tip of nose |
| C. | Tissue | Location |
| | Cuboidal epithelium | Lining of stomach |
| D. | Tissue | Location |
| | Smooth muscle | Wall of intestine |

Answer: D



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157. Smooth muscles are

- A. involuntary, fusiform, non-striated

B. voluntary, multinucleate, cylindrical

C. involuntary, cylindrical, striated

D. voluntary, spindle- shaped, uninucleate

Answer: A



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158. Myelin sheath is produced by

or

Myelin of the nerve fibres of the central nervous system is produced and maintained by

A. astrocytes and Schwann cells

B. oligodendrocytes and osteoclasts

C. osteoclasts and astrocytes

D. Schwann cells and oligodendrocytes

Answer: D



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159. The hepatic portal vein drains blood to liver from

- A. stomach
- B. kidneys
- C. intestine
- D. heart

Answer: A::C



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160. Nissl bodies are mainly composed of

- A. proteins and lipids

B. DNA and RNA

C. nucleic acids and SER

D. free ribosomes and RER

Answer: D



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Practice Questions Assertion Reason Type Questions

1. Assertion . Dorsal pores of earthworm are outlets of coelom.

Reason. Coelomic fluid oozes out via dorsal pores to moisten skin .

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 Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A

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2. Assertion. Cockroach undergoes periodic ecdysis during its growth.

Reason. Cockroach has compound eyes.

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 Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B

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3. Assertion. Spiracles of cockroach open out on one side and into tracheae on the other side.

Reason. Spiracles allow inspiration and expiration.

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 Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C



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4. Assertion. Frog neither hibernates nor aestivates.

Reason. Frog can control its body temperature.

- 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 Assertion is true but the Reason is false.
- D. If both Assertion and Reason are false.

Answer: D



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5. Assertion. Frog has osmoreceptors in its mouth.

Reason. Osmoreceptors help frog in locating a mate.

- 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 Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C

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6. Assertion. White rat has pink eyes.

Reason. White rat is a genetic mutation of brown rat.

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 Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B



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Curiosity Questions

1. Which tissues are capable of conducting electrical impulses?



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2. Which is the most abundant type of animal tissue?



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3. What is a cell nest?



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4. Why injury to cartilage takes a long time to heal?

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5. What are blood electrolytes?

 [Watch Video Solution](#)

6. What is the advantage of leucocytosis?

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7. Can you cite an animal cell that lacks centrioles?

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8. Which tissues are capable of conducting electrical impulses?

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9. Which is the most abundant type of animal tissue?

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10. What is a cell nest?

 [Watch Video Solution](#)

11. Why injury to cartilage takes a long time to heal?

 [Watch Video Solution](#)

12. What are blood electrolytes?



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13. What is the advantage of leucocytosis?



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14. Can you cite an animal cell that lacks centrioles?



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Notable Question

1. What is leptin?



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2. What is leptin?



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Practice Questions II Assertion Reason Type Questions

1. Assertion : Urinary Bladder is lined by transitional epithelium .

Reason : Transitional epithelium keeps the size of the bladder constant at all times.

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

Answer: C



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2. Assertion. Pancreas is a heterocrine gland.

Reason. Pancreas consists of exocrine as well as endocrine tissue.

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

Answer: A



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3. Read the following statement and select the correct option

Statement 1 : Cardiac muscle of the heart is striated and has intercalated discs between its fibres (cells)

Statement 2 : It provides quick, powerful and rhythmic contractions to the heart.

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

Answer: A

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4. Assertion. Whales can live in cold water as they have a thick coat of blubber under the skin.

Reason. Blubber consists of adipose tissue that insulates the body.

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

Answer: A



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5. Assertion. Nerve fibres in the CNS can regenerate after injury.

Reason. They have around them neurilemma that brings about regeneration.

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

Answer: D



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6. Assertion. Multinucleate giant cells are formed in the areolar tissue by fusion of many macrophages.

Reason. The multinucleate giant cells surround foreign bodies too large to be engulfed by a single macrophage.

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

Answer: A



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7. Read the following statement and select the correct option

Statement 1 : Bone and cartilage are rigid connective tissues

Statement 2 : Blood is a connective tissue with fluid (plasma) matrix.

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

Answer: B

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8. Assertion : Urinary Bladder is lined by transitional epithelium .

Reason : Transitional epithelium keeps the size of the bladder constant at all times.

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

Answer: C



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9. Assertion. Pancreas is a heterocrine gland.

Reason. Pancreas consists of exocrine as well as endocrine tissue.

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

Answer: A



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10. Read the following statement and select the correct option

Statement 1 : Cardiac muscle of the heart is striated and has intercalated

discs between its fibres (cells)

Statement 2 : It provides quick, powerful and rhythmic contractions to the heart.

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

Answer: A



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11. Assertion. Whales can live in cold water as they have a thick coat of blubber under the skin.

Reason. Blubber consists of adipose tissue that insulates the body.

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

C. If A is true but R is false.

D. If both A and R are false.

Answer: A



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12. Assertion. Nerve fibres in the CNS can regenerate after injury.

Reason. They have around them neurilemma that brings about regeneration.

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

B. If both A and R are true but R is not the correct explanation of A.

C. If A is true but R is false.

D. If both A and R are false.

Answer: D



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13. Assertion. Multinucleate giant cells are formed in the areolar tissue by fusion of many macrophages.

Reason. The multinucleate giant cells surround foreign bodies too large to be engulfed by a single macrophage.

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

Answer: A



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14. Read the following statement and select the correct option

Statement 1 : Bone and cartilage are rigid connective tissues

Statement 2 : Blood is a connective tissue with fluid (plasma) matrix.

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

Answer: B



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