



BIOLOGY

BOOKS - MODERN PUBLISHERS

BIOLOGY (HINGLISH)

STRUCTURAL ORGANISATION IN ANIMALS

Practice Problem

1. Define histology.



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2. List two structural properties of epithelial tissue.



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3. Why is squamous epithelium called pavement epithelium ?



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4. Give the position and function of germinal epithelium.



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5. What is brush-bordered cuboidal epithelium? What is its significance?



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6. Give the position and function of pseudostratified epithelium ?



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7. Why is tracheal epithelium called pseudostratified epithelium ?



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8. What are stereocilla ?



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9. List two peculiar features of transitional epithelium.



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10. What is keratinisation ?



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11. Why is gut mucosa with large number of goblet cells ?



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12. Give the position of compound tubular and compound saccular glands.



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13. List one example of each of exocrine, endocrine and heterocrine glands.



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14. What is heterocrine glands ?



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15. How do holocrine and merocrine glands differ from each other ?



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16. Name two muscles of human body which are ectodermal in origin.



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17. What are myofibrils?



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18. Why do the muscle cells and nerve cells not have power of growth and regeneration ?



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19. Name three types of muscles found inside the human body .



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20. List two structural differences between striated and unstriated muscle fibres.



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21. What is structural and functional unit of a muscle fibre ?



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22. What do you mean by strification of muscle fibre ?



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23. List two differences between A-band and I-band.



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24. List two structural adaptations in striated muscle fibres to draw more energy.



Watch Video Solution

25. Why are striated muscles called skeletal muscles ?



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26. What do you mean by single-unit smooth muscles ?



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27. List two structural peculiarities of cardiac muscle fibres ?



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28. What is Z-line ? Give its function.



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29. What is sarcoplasmic reticulum ? What is its function ?



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30. Why we shiver during winter months ?



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31. On the basis of matrix, connective tissues are of three types. Name them.



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32. Name five types of connective tissue proper.



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33. Name different types of cells found in the matrix of areolar connective tissue. Give their function.



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34. List two differences between white fibres and yellow fibres.



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35. Why is areolar connective tissue called loose fibrous connective tissue ?



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36. Define tendon. Give its function.



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37. What is ligament ? What is its function?



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38. How do white adipose tissue and brown adipose tissue differ from each other ?



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39. What are reticular cells ? Give their function.



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40. What is blubber ? Give its function.



Watch Video Solution

41. List two basic functions of skeletal tissue.



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42. What is nature of matrix of cartilage ?



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43. Which is the most common type of cartilage ? Give its basic function.



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44. What are chondroblasts?



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45. Name two types of cells found in a bone.



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46. Which is the hardest cartilage ? Give one example and its function.



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47. Why is the fibro-cartilage toughest and hardest ?



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48. What is the nature of matrix of bone ?



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49. What is bone marrow? Give its function.



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50. Name two types of canals present inside the body. What is their function ?



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51. What is sesamoid bone ? Give one example

.



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52. How does vascular tissue differ from other type of connective tissue ?



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53. Name main types of blood proteins.



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54. Which blood proteins are involved in blood clotting ?



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55. What is significance of biconcave shape of RBCs.



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56. Give the RBC-count of normal man and woman



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57. What is polycythaemia?



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58. Name the instrument used to measure RBC count .



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59. Why are RBCs anaerobic in their respiration ?



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60. Give haemoglobin count in a normal woman and man.



Watch Video Solution

61. Name the instrument used to measure Hb-count.



Watch Video Solution

62. What is life span of human RBC ?



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63. Why is spleen called graveyard of RBCs ?



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64. Define haemolysis.



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65. Why is spleen called blood bank of the body ?



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66. What is RBC:WBC ratio in a normal adult man ?



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67. Why are granulocytes called polymorphonuclear corpuscles ?



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68. Name the most abundant and least number of leucocytes of blood.



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69. Why are neutrophils called soldiers of the body ?



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70. Give the function of monocytes.



Watch Video Solution

71. Give the function of lymphocytes .



Watch Video Solution

72. What are blood platelets ? Give their function.



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73. How do thrombocytes differ from the blood platelets ?



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74. What is diapedesis ?



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75. Why is lymph called middle man of body ?



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76. What is blood coagulation ? Give its significance.



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77. How does serum differ from blood plasma ?

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78. What is role of vitamin K in blood clotting ?

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79. Define thrombosis.

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80. What is haematocrit value ?



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81. List two fundamental properties of nerve cells.



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82. Why do neutrons not have division power ?



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83. What are Nissl's granules ? Give their functions.



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84. What are neurofibrils? Give their functions.



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85. Name two types of nerve processes of a neuron ?



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86. Why is axon called efferent nerve process ?



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87. How do nucleus and ganglion differ from each other ?



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88. Define synapse.



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89. What are bipolar neurons? Where are these located ?



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90. Where are pseudounipolar neurons present in the body?



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91. Name two types of nerve fibres .



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92. What is medullary sheath ? Mention its significance



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93. What are nodes of Ranvier and internodes ?



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94. What are neuroglial cells? Give their functions.



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95. Which cells secrete the neurilemma ?



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96. What do you mean by metameres or somites ?



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97. Define clitellum. Give its function.



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98. What are annuli?



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99. What are setae?



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100. Which type of arrangement of setae is found in earthworm ?





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101. Differentiate between peristomium and prostomium in earthworm.



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102. Give the location of male gonopores .
What is their function.



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103. What are copulatory papillae ? Give their function.



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



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105. Why is earthworm called a hemaphrodite animal ?



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106. Name the masticatory part of a alimentary canal of earthworm.



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107. What is typhlosole ?



Watch Video Solution

108. Name the excretory structures of earthworm.



Watch Video Solution

109. How many hearts are found in earthworm



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110. Why does earthworm always show cross-fertilization ?



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111. What are sclerites ?



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112. Name three body parts of a cockroach .



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113. Head of cockroach is called hypognathous
. Why ?



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114. Give another name for upper lip and lower lip of cockroach.



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115. Which type of mouth parts are found in cockroach?



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116. What are ommatidia ?



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117. Differentiate a tergum and a sternum.



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118. Why are the fore wings of cockroach called tigmia ?



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119. Give two difference between male and female cockroach .



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120. What is gonapophyses?



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121. What is function of crop in cockroach ?



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122. Name the respiratory structures of cockroach.



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123. Why does the blood of cockroach called haemolymph ?



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124. Name the visual units of compound eyes of cockroach .



Watch Video Solution

125. What are excretory structures of cockroach ?



Watch Video Solution

126. Give the position of ovaries in cockroach .



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127. Give the functions of mushroom gland in male cockroach .



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128. What is nature of skin in frog?



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129. Why are the eyes of frog located on the dorsolateral sides of head and bulging outward?



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130. What is nictitating membrane? Give its function.



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131. What are vocal sacs? Give their function.



Watch Video Solution

132. Define amplexusory pads. What is their function?





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133. Name the skin folds between the toes.

What is their function?



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134. Why are three parts of legs of frog folded

in Z-form?



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135. List two differences between male and female frog.



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136. What is nature of tongue of frog?



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137. Pericardium



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138. Name the main as well as accessory chambers of heart of frog.



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139. Give one difference between the RBCs of frog and those of rat.



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140. How many cranial nerves are present in frog and rabbit?



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141. What are the two functions of ear?



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142. Name the excretory units of kidneys of frog and rabbit.



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143. What is Bidder's canal?



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144. Name the mesentery which suspends testis in frog.



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145. What is spawn?



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Ncert File Ncert Exercise Questions

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. What are the cellular components of blood?



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

(a) Chondriocytes

(b) Axons

(c) Ciliated epithelium



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



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9. 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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10. 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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11. Match the terms in column I with those in
column II:

Column I	Column II
(a) Compound epithelium	(i) Alimentary canal
(b) Compound eye	(ii) Cockroach
(c) Septal nephridia	(iii) Skin
(d) Open circulatory system	(iv) Mosaic vision
(e) Typhlosole	(v) Earthworm
(f) Osteocytes	(vi) Phallomere
(g) Genitalia	(vii) Bone

Answer 11:



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12. Mention briefly about the circulatory system of earthworm



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



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Ncert File Exemplar Problems Multiple Choice Questions

1. 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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2. 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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3. Which one of the following is not a connective tissue

A. Bone

B. Cartilage

C. Blood

D. Muscles

Answer: C



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4. The clitellium is a distinct part in the body of earthworm, it is found in

A. Segments 13-14-15

B. Segments 14-15-16

C. Segments 12-13-14

D. Segment 15-16-17

Answer: B



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5. Setae help in locomotion in earthworm but not uniformly present in all the segments.

Select among the following that represents setae

- A. 1st segment
- B. Last segment
- C. Clitellar segment
- D. 20th -22nd segment

Answer: D



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6. Which one of the following statements is true for cockroach ?

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

Answer: C



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7. Match the followings 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



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8. Match the followings and choose the correct option:

(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



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9. Match the followings 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



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10. Match the followings and choose the correct option:

(A) Touch	(i) Nasal epithelium
(B) Smell	(ii) Foramen magnum
(C) Cranial nerves	(iii) Sensory papillae
(D) Medulla oblongata	(iv) Peripheral nervous system



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**Ncert File Exemplar Problems Very Short Answer
Type Question**

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



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2. Where are sclerites present in cockroach ?



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



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



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



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



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



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8. Name the different cell junctions found in tissues



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



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10. which mouth part of cockroach is comparable to our tongue ?



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11. 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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12. What is the difference between cutaneous and pulmonary respiration ?



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13. Special venous connection between liver and intestine as well as the kidney and lower parts of body are present in frog that is called



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Ncert File Exemplar Problems Short Answer Type Question

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



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



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3. The body of sponges does not possess tissue level of organisation though it is made of thousands of cell. Comment.



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4. Structural organisation in animals attains different levels as cell-organ - organ system , what is missing in this chain ? Mention the significance of such and organisation .



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5. Stratified epithelial cells have limited role in secretion , Justify their role in our skin .



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6. How does a gap junctions facilitate intercellular communication ?



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



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8. Why are neurons called excitable cells ?

Mention special features of the membrane of the neuron .



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9. Why earthworm is called the friend of farmer ?



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10. How do you distinguish between dorsal and ventral surface of the body of earthworm ?



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11. Correct the wrong statements among the following:

(a) In earthworm, a single male genital pore is present.

(b) Setae help in locomotion of earthworm.

(c) Muscular layer in the body wall of earthworm is made up of only circular muscles.

(d) Typhlosole is the part of intestine of earthworm.



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



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13. Common name of some animals are given in Column A, write their scientific name in Column B:

Column A	Column B
(a) Tiger	_____
(b) Peacock	_____
(c) Housefly	_____



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14. Complete the statement:

In Cockroach grinding of food particle is

performed by _____ .



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15. Complete the statement:

Malpighian tubules help in removal of



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16. Complete the statement:

Hind gut of Cockroach is differentiated into



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17. Complete the statement:

In Cockroach, blood vessels open into spaces called ----- .



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18. Mention special features of eye in cockroach.



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19. Frog is a poikilotherm , exhibits camouflage and undergoes aestivation and hibernation how are all these beneficial to it ?



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20. Write the functions in brief in column B, appropriate to the structures given in column

A:

Column A	Column B
(a) Nictitating membrane	(i) _____
(b) Tympanum	(ii) _____
(c) Copulatory pad	(iii) _____



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21. Write the appropriate type of tissues in column B, according to the functions mentioned in column A:

Column A	Column B
(a) Secretion and absorption	(i) _____
(b) Protective covering	(ii) _____
(c) Linking and supporting framework	(iii) _____



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22. Using appropriate examples , differentiate between false and true body segmentation .



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



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Ncert File Exemplar Problems Long Answer Type Question

1. Classify and Describe epithelial tissue on the basis of structural Modifications of cells .



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2. write down the common features of the connective tissue .On the basis of structure and function .Differentiate between bones and cartilages .



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3. Comment upon the gametic exchange in earthworm during mating.



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4. Explain the digestive of cocktem of cockroch with the help of a labelled sketch .



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



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Higher Order Thinking Skills Brain Twisting Questions With Answers Very Short Answer Questions

1. PCT is lined by brush-bordered columnar epithelium . Why ?



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2. Give the location and function of mast cells.



Watch Video Solution

3. Which cells of tissues do not have division power and why?



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4. Name a calcified cartilage. Why it is present in frog but not in man?



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5. Croacking sound is louder in male frog than female. Give reason.



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6. Why nerve impulses travel faster in medullated nerve fibres?



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7. Why the blood is called river of life?



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8. State two differences between male and female cockroach?



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9. What is function of genital papillae in earthworm?



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10. Which corpuscles of blood act as soldiers and scavengers of body?



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Higher Order Thinking Skills Brain Twisting Questions With Answers Short Answer Questions

1. Name the tissue that lines the fallopian tubes. State any one advantage of this tissue being present here.



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2. Give the number, position and function of copulatory Papillae in earthworm.



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3. Differentiate between male frog and female frog .



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4. Discuss hearts in earth warm.



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5. What will happen when human RBCs are placed in 2% NaCl solution?



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6. Differentiate between single-unit and multi-unit smooth muscles.



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7. Describe various types of leucocytes found in blood of man.



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8. Name the major classes of plasma proteins and describe their functions



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9. Write short notes on: (i) Clitellum (ii) Setae of earthworm



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10. Write short notes on: (i) Vocal sacs (ii) Amplexusory pads in frog



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Higher Order Thinking Skills Brain Twisting Questions With Answers Long Answer Questions

1. Give an account of a neuron.



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2. Discuss structure of heart of frog.



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Quick Memory Test Say True Or False

1. Sarcomere is a segment of striated muscle fibre between consecutive Z-lines .



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2. Neuroglial cells are packing cells between the neurons.



[Watch Video Solution](#)

3. A tendon attaches a muscle to a muscle.



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4. Nissl's granules in the cyton are the ribosomes attached on rough endoplasmic reticulum



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5. Haemocyanin is a red coloured respiratory pigment present in the blood of molluscs



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6. Blood platelets are formed from macrophages.



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7. Larynx is lined by pseudostratified epithelium.



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8. Serum albumin acts as antibody to help in body defence.



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9. Bone forming cells are called osteoclasts while bone dissolving cells are called osteoblasts.



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10. Histiocytes of areolar connective tissue are phagocytic in action



Watch Video Solution

11. Ependyma lines the cavities of brain and spinal cord.



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12. Nodes of Ranvier occur in non-myelinated nerve fibres.



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13. Male gonopores in earthworm are located on 18th segment.



Watch Video Solution

14. Genital papillae are three pairs and are with openings of accessory glands.



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15. Clitellum is present around 13th, 14th and 15th segments of earthworm.



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16. Arthrodial membranes join the sclerites of exoskeleton of cockroach.



Watch Video Solution

17. Labrum forms the lower lip of mouth parts of cockroach .



Watch Video Solution

18. Anal cerci are present in both male and female cockroach.



Watch Video Solution

19. Spongy part of long bone contains yellow bone marrow which produces blood corpuscles.



Watch Video Solution

20. Both cardiac and smooth muscles are un nucleate and involuntary.



[Watch Video Solution](#)

Quick Memory Test Complete The Missing Links

1. epithelium is also called pavement epithelium .



[Watch Video Solution](#)

2. Germinal epithelium is located inof testes .



Watch Video Solution

3. The non-motile cila are called



Watch Video Solution

4. A tendon attaches a To a..... .



Watch Video Solution

5.is a heterocrine gland.



Watch Video Solution

6. Contractile threads present in sarcoplasm of muscle cells are called



Watch Video Solution

7. Pseudostratified epithelium lines thetract while transitional epithelium lines the.....tract.



Watch Video Solution

8.is the structural and functional unit of muscle fibres.



Watch Video Solution

9. Tendon contain bundles of.....fibres and rows ofcells between them



[Watch Video Solution](#)

10. Nerve impulses come to the cell body of a neuron along it.....and go away from the cell body along its



[Watch Video Solution](#)

11. Bipolar neurons are found in



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12. Brush-bordered cuboidal epithelial cells bear..... on their free ends.



Watch Video Solution

13. Reticular connective tissue is found in

.



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14. Suprascapula of frogs..... cartilage.



[Watch Video Solution](#)

15. Haverian canals of a bone are interconnected by



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16. bands of muscle fibres are made up of protein myosin, while..... bands are composed of actin .



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17. cells help in blood clotting.



Watch Video Solution

18. The large spherical or oval cells present in adipose tissue are.....



Watch Video Solution

19. With reference to sex, earthworm is..... .



Watch Video Solution

20. Cocoon is secreted by



Watch Video Solution

21. 1st segment of earthworm is called



[Watch Video Solution](#)

22. In earthworm, sperms are stored in



[Watch Video Solution](#)

23. Exoskeleton of cockroach is



[Watch Video Solution](#)

24. Is the visual unit of compound eye of cockroach.



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25. Anal..... Are called "ears" of cockroach as have phonoreceptors.



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26. Mouth parts of cockroach are

Type.



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27. Only Wings are used in flight in cockroach .



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28. Act as resonators in frog.





[Watch Video Solution](#)

29. Sexual embrace of male and female frog is called.



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30. Common outlet of faeces, nitrogenous wastes and sex cells in frog is called.....



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Quick Memory Test Choose The Correct Alternative

1. Muscular tissue/Nervous tissue is a compound tissue.



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2. Urinary bladder is lined by stratified epithelium/transitional epithelium.



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3. Pancreas is a/an heterocrine gland/
endocrine gland.



Watch Video Solution

4. Skeletal muscles/cardiac muscles show
rhythmic contraction.



Watch Video Solution

5. A-band of striated muscle fibre is with myosin/actin/both myosin and actin proteins.



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6. Tendon is formed of white fibres/ yellow fibres.



[Watch Video Solution](#)

7. Bone shows unidirectional/bidirectional growth.



[Watch Video Solution](#)

8. Antibodies are secreted by Lymphocytes/Monocytes of blood.



[Watch Video Solution](#)

9. Nissle's granules are rich in SER/RER.



[Watch Video Solution](#)

10. Dendrons are afferent/efferent in nature.



[Watch Video Solution](#)

11. Earthworm has two/four pairs of lateral hearts.



[Watch Video Solution](#)

12. Excretory organs of earthworm are nephridia/nephrons.



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13. Visual units of compound eyes of cockroach are taenidia/ommatidia.



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14. The most important respiratory organ of frog is



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15. Frog is ureotelic/uricotelic in excretion.



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Revision Exercises Very Short Answer Questions

1. Give the location of germinal epithelium



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2. Where is Z-line present ?



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3. Name the protein found in A-band and I-band



Watch Video Solution

4. Which tissue stores the fat ?



Watch Video Solution

5. Name the protein is found in white fibre and yellow fibre.



Watch Video Solution

6. Give an example of hyaline and calcified cartilage.



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7. Which mineral is most abundantly found in the bone?



[Watch Video Solution](#)

8. Give the location of Nissl's granules.



Watch Video Solution

9. What is synapse?



Watch Video Solution

10. Name the sheath of cartilage and bone.



Watch Video Solution

11. The most abundant and least abundant cells of the blood are



Watch Video Solution

12. What is sarcomere ?



Watch Video Solution

13. Name the tissue that lines intestinal mucosa and give its advantage.



Watch Video Solution

14. Give the function of histiocytes.



Watch Video Solution

15. Provide one word for the abnormal rise in total count of RBCs.



Watch Video Solution

16. Give the location of transitional epithelium.



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17. State one difference between simple epithelium and compound epithelium.



Watch Video Solution

18. Name two peculiar properties of muscle fibres.



[Watch Video Solution](#)

19. What is sarcoplasmic reticulum?



[Watch Video Solution](#)

20. State one difference between single-unit and multi-unit smooth muscles.



[Watch Video Solution](#)

21. Why are the smooth muscles called visceral muscles?



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22. Why is areolar connective tissue also called loose fibrous connective tissue?



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23. Name various types of cells found in the matrix of areolar connective tissue.



Watch Video Solution

24. State one difference between spongy bone and compact bone.



Watch Video Solution

25. Define Haversian system.



Watch Video Solution

26. Why is blood called "river of life"?



Watch Video Solution

27. Name five types of leucocytes of human blood.



Watch Video Solution

28. Define RBC count.



Watch Video Solution

29. Which organ of human body acts as both blood bank and graveyard of RBCS?



Watch Video Solution

30. State one difference between dendron and axon.



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31. What are nodes of Ranvier?



[Watch Video Solution](#)

32. Which cells secrete the medullary sheath?



[Watch Video Solution](#)

33. What are annuli?



[Watch Video Solution](#)

34. What is clitellum? Give its function.



[Watch Video Solution](#)

35. Give the location of male and female gonopores in earthworm.



[Watch Video Solution](#)

36. What are genital papillae? Where are these located?



Watch Video Solution

37. How many are there pairs of spermathecal pores?



Watch Video Solution

38. Which type of mouth parts are found in cockroach?



Watch Video Solution

39. What are sclerites?



Watch Video Solution

40. What are ommatidia?



Watch Video Solution

41. What are tegmina? Give their function.



Watch Video Solution

42. Give one major difference between male cockroach and female cockroach.



Watch Video Solution

43. What are amplexusory pads? Give their function.



Watch Video Solution

44. What are setae? Give their function.



Watch Video Solution

45. Which structures of earthworm are analogous to kidneys of the vertebrates?



Watch Video Solution

46. What are chloragogen cells? Give their function.



Watch Video Solution

47. Why does self-fertilization not occur in earthworm?



Watch Video Solution

48. Name the digestive glands of cockroach.



Watch Video Solution

49. Define tracheal intercom.



Watch Video Solution

50. What are gonapophyses in cockroach? Give their function.



Watch Video Solution

51. Name the hormones secreted by corpora cardiaca and corpora allata.



Watch Video Solution

52. Define spawn.



Watch Video Solution

53. Why is croaking louder in male frog?





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54. Name two types of respiratory muscles in frog.



[Watch Video Solution](#)

55. Define amplexus.



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1. What are two chemical substances released into the blood by the mast cells? Specify the effect of each



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2. Describe briefly nature of pseudostratified epithelium Give one example.



[Watch Video Solution](#)

3. Name the kind of epithelium which forms the inner lining of:

(i) Blood vessels (ii) Fallopian tube. Mention one difference between the two.



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4. Discuss the normal and abnormal RBC count.



Watch Video Solution

5. Give two peculiar properties of cardiac muscle fibres



Watch Video Solution

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



Watch Video Solution

7. What is clitellum? Give its function.





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8. Differentiate male and female frog



[Watch Video Solution](#)

9. What is nature of exoskeleton of cockroach?

List its functions.



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10. How do stratified epithelium and transitional epithelium differ from each other?



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11. Differentiate between Merocrine, Apocrine and Holocrine glands.



Watch Video Solution

12. Differentiate between tendon and ligament.



Watch Video Solution

13. Differentiate between fibro-cartilage and elastic cartilage.



Watch Video Solution

14. How do axon and dendron differ from each other?



Watch Video Solution

15. Give the position and function of bipolar neurons.



Watch Video Solution

16. What are nephridia? Mention the types of nephridia in earthworm?



Watch Video Solution

17. What are ommatidia? Define mosaic vision of cockroach.



Watch Video Solution

18. Which type of mouth parts are found in cockroach? Name the components of mouth parts.



Watch Video Solution

19. Define metameric segmentation. Where does it occur?



Watch Video Solution

20. Define tracheal intercom. Why is the respiratory system of cockroach more efficient than that of earthworm?



Watch Video Solution

21. What is Bidder's canal? Give its function.



Watch Video Solution

22. What happens when human RBCs are placed in 0.2% NaCl solution?



Watch Video Solution

23. Give two differences between striated and non-striated muscles.



Watch Video Solution

24. Give the scientific name of earthworm.

What is vermicomposting?



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25. Give scientific name of Indian frog. Give two differences between frog and toad.



Watch Video Solution

26. List various characteristics of epithelial tissue.



Watch Video Solution

27. Explain the structure of stratified keratinised squamous epithelium .



Watch Video Solution

28. Distinguish between:

(i) Single-unit smooth muscle and multi-unit smooth muscle.

(ii) Myelinated and non-myelinated nerve fibres.



Watch Video Solution

29. List the differences between a bone and a cartilage.



Watch Video Solution

30. Differentiate between :

(i) Tendon and ligament

(ii) Plasma and lymph.



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31. Write a note on organs of excretion in a frog.



Watch Video Solution

32. Describe types of multicellular glands on the basis of their shape.



Watch Video Solution

33. Describe transitional epithelium . Where does it occur ?



Watch Video Solution

34. Briefly describe the structure of hyaline cartilage .



Watch Video Solution

35. Write a note on Haversian system of bone.



Watch Video Solution

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



Watch Video Solution

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



Watch Video Solution

38. Differentiate three types of nephridia of earthworm.



Watch Video Solution

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



Watch Video Solution

40. Describe trachea of cockroach and mode of tracheal respiration.



Watch Video Solution

41. Discuss the structure present in the buccopharyngeal cavity of frog.



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Revision Exercises Long Answer Questions

1. Describe the formed components of human blood.



Watch Video Solution

2. list the differences between he striated , smooth and cardiac muscle fibres.



Watch Video Solution

3. Give an ilustrated account of cartilage .
Mention the important features of different types of cartilages.



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



[Watch Video Solution](#)

5. Describe the apertures present on the body of earthworm.



[Watch Video Solution](#)

6. केचुए के परिसंचरण तंत्र का संक्षेप में वर्णन करें।



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7. Which two types of structures are present on throax of cockroach ? Which brief notes on them.



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[Competition](#) [File](#) [Objective](#) [Type](#) [Questions](#)
[Multiple Choice Questions](#)

1. Which of the following structures are absent in forelimb of frog ?

(a) Brachium (b) Web

(c) Antebrachium (d) Tarsal

A. 1,2 and 3 correct

B. 1 and 2 are correct

C. 2 and 4 are correct

D. 1 and 3 are correct

Answer: C



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2. ATPase enzyme required for muscle contraction is located in :

A. Actinin

B. Troponin

C. Myosin

D. Actin

Answer: C



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3. Debove's membrane is a layer of

- A. Muscular tissue
- B. Connective tissue
- C. Epithelial tissue
- D. All of the above

Answer: B



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4. Achilles tendon is associated with

A. Gluteus muscle

B. Hamstring muscle

C. Quadriceps muscle

D. Gastrocnemius muscle

Answer: D



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5. Among the leucocytes , the largest quantity is of :

A. Basophils

B. Neutrophils

C. Eosinophils

D. None of these

Answer: B



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6. The lining of intestine and kidneys in human is

- A. Keratinized
- B. Brush border
- C. Ciliated
- D. None of these

Answer: B



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7. Which of the following part of a neuron is covered by fatty

or

The efferent process of neuron is known as

A. Axon

B. Cyton

C. Dendrite

D. Node of Ranvier

Answer: A



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8. An example of embryonic connective tissue is :

- A. Wolman jelly
- B. Wharton's jelly
- C. Wright's jelly
- D. None of these

Answer: B



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9. Rupture of urinary bladder is prevented by

- A. Pseudostratified epithelium
- B. Stratified columnar epithelium
- C. Stratified cuboidal epithelium
- D. Transitional epithelium

Answer: D



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10. Which one of the following is present in the integument of frog but not in that of mammals ?

A. Dermis

B. Mucous gland

C. Sweat glands

D. Stratum germinativum

Answer: B



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11. Pylangium in frog is located in :

A. Conus arteriosus

B. Sinus venosus

C. Atrium

D. Ventricle

Answer: A



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12. Excretory organs of Cockroach are

A. Malpighian corpuscles

B. Malpighian tubules

C. Hepatic caecae

D. Metanephridia

Answer: B



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13. Which one of the following is correctly matched regarding earthworm ?

- A. Buccal cavity = 1st to 5th segment
- B. Stomach = 11th and 12th segment
- C. Typhlosole = 26th to 95th segment
- D. Gizzard = 6th to 8th segment

Answer: C



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14. The male cockroach can be identified by the presence of :

A. Collateral glands

B. Green glands

C. Broad abdomen

D. Anal styles

Answer: D



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15. In cockroach , stink gland is found in:

A. 4th and 5th terga

B. 5th and 6th terga

C. 5th and 6th sterna

D. 4th and 5th sterna

Answer: B



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16. 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 these

Answer: C



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17. In housefly , pseudotracheae are found in

A. Haustellum

B. Rostrum

C. Labellum

D. None of these

Answer: C



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18. Which of the following is not to character of *Taenia solium* ?

A. Apolysis

B. Proglottids

C. Metamerism

D. Scolex

Answer: C



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

A. 60 to 120

B. 100 to 120

C. 80 to 120

D. 120 or more

Answer: B



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20. The tailless primate is:

A. Lemur

B. African baboon

C. spider monkey

D. Loris

Answer: D



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21. Earthworm has 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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22. 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: 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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23. Which type of white blood cells are concerned with the release of histamine and the natural anticoagulant heparin ?

A. Eosinophils

B. Monocytes

C. Neutrophils

D. Basophils

Answer: D



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24. Most active phagocytic white blood cells are

A. Eosinophils and lymphocytes

B. Neutrophils and monocytes

C. Neutrophils and eosinophils

D. Lymphocytes and macrophages

Answer: B



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25. Which one of the following pairs of items correctly belongs to the category of organs mentioned against it

A. Nephridia of earthworm and malpighian tubules of cockroach-
Excretory organs.

B. Wings of honey and wings of crow-
Homologous organs

C. Thorn of Bougainvillea and tendrils of
Cucurbita-Analogous organs

D. Nictitating membrane and blind spot in
human eye-Vestigial organs

Answer: A



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26. Earthworm are

- A. Ureotelic when plenty of water available
- B. Uricotelic when plenty of water available
- C. Uricotelic under condition of water scarcity
- D. Ammonotelic when plenty of water available

Answer: D



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27. Which one of the following has an open circulatory system ?

A. Pheretina

B. Periplaneta

C. Hirudinaria

D. Octopus

Answer: B



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28. In cockroach, larval and nymphal characters are maintained by

- A. Ecdysone
- B. Salivary glands
- C. Parotid glands
- D. Juvenile hormone

Answer: D



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29. 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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30. Changes that allow the conversion of larve into adult, is called :

- A. Metagenesis
- B. Alternation
- C. Metamorphosis
- D. Metastasis

Answer: C



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31. In mollusca, eye is present over a stalk called

- A. Ostradium
- B. Operculum
- C. Osphradium
- D. Ommatrophore

Answer: D



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32. Which of the following is a transparent tissue ?

- A. Tendon
- B. Fibro-cartilage
- C. Hyaline cartilage
- D. All of the above

Answer: C



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33. Nerve cell do not divide because they do not have

- A. Nucleus
- B. Centrosome
- C. Golgi bodies
- D. Mitochondria

Answer: B



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34. Synovial joint is:

(1)Ball and socket joint (2)Pivot joint (3)Hinge joint (4)Cartilage joint

A. 1,2,and 3 are correct

B. 1 and 2 are correct

C. 2 and 4 are correct

D. 1 and 3 are correct

Answer: A



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35. Ligament is mainly made up of :

A. Reticulin

B. Elastin

C. Myosin

D. Collagen

Answer: B



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36. Irregular nuclei is present in

Or

Which white blood cell releases chemical to inhibit blood clotting

A. Neutrophils

B. Basophils

C. Eosinophils

D. Monocytes

Answer: A



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37. Nucleated RBC is found in:

A. Man

B. Rat

C. Rabbit

D. Frog

Answer: D



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38. Connection between axon and dendrite is:

A. synapsis

B. synapse

C. Desmosome

D. Tight junction

Answer: B



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39. Hinge joint is present between

- A. Femur and ulna
- B. Humerous and ulna
- C. Femur and pectoral girdle
- D. Femur and pelvic girdle

Answer: B



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

A. 10,10

B. 9,10

C. 10,11

D. 8,10

Answer: C



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41. 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. 27 to 95 segments
- D. 15 to last segments

Answer: C



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

A. Chordata, Craniata, Amphibia,
Gnathostomata, *Rana*

B. Chordata, Craniata, Ganthostomata,
Amphibia, *Rana*

C. Chordata, Ambhibia, Gnathostomata,
Craniata, *Rana*

D. Chordata, Craniata, Gnathostomata,
Tigrina

Answer: B



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

- A. Alimentary canal
- B. Portal system
- C. Hepatic portal vessel
- D. Notochord

Answer: A



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44. In a myelinated neuro, two adjacent myelin sheath separated by gaps called

- A. Nodes of Ranvier
- B. Synaptic cleft
- C. Schwann cells
- D. Synaptic knob

Answer: A



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45. Name the type of tissue that form gland

A. Muscular

B. Epithelial

C. Squamous

D. Cuboidal

Answer: B



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46. In frog and other anuran, the caudal vertebrae are fused to form:

A. Coccyx

B. Phagostyle

C. Urostyle

D. Prehensile tail

Answer: C



47. Endothelium of blood vessels is made up of

:

- A. Simple cuboidal epithelium
- B. Simple squamous epithelium
- C. Simple columnar epithelium
- D. Simple non-ciliated columnar epithelium

Answer: B



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

A. Cuboidal

B. Glandular

C. Ciliated

D. Squamous

Answer: C



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

A. Heart wall-Involuntary unstrained muscles

B. Biceps of upper arm-Smooth muscle fibres

C. Abdominal wall-Smooth muscle

D. Iris- Involuntary smooth muscle

Answer: D



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50. Compared to blood our lymph has

- A. No plasma
- B. Plasma without proteins
- C. Less WBCs and no RBCs
- D. More RBCs and less WBCs

Answer: C



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51. The cell junctions like tight junctions, desmosomes and gap junctions are found in :

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

Answer: C



52. The kind of tissue that forms the supportive structure in our pinna (external ears) is also found in -

- A. Vertebrae
- B. Nails
- C. Ear ossicles
- D. Tip of the nose

Answer: D



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

A. Two pairs of accessory glands in 16 and 18 segments.

B. Four pairs of spermathecae in 4-7 segments.

C. One pair of ovaries attached at septum between 14th and 15th segments.

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

Answer: D



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

A. Excretory fluid

B. Coelomic fluid

C. Haemolymph

D. Slimy mucus

Answer: B



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55. Cells that maintain marrow cells are called

A. Osteocytes

B. Chondrocytes

C. Osteoclasts

D. None of these

Answer: A



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56. Histamine is secreted by

A. Liver cells

B. Mast cells

C. Nerve cells

D. Kidneys

Answer: B



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57. Dark bands are

A. A-bands

B. B-bands

C. I-bands

D. Z-lines

Answer: A



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58. Which cartilage is present at the end of long bones?

A. Calcified

B. Elastic

C. Hyaline

D. Fibrous

Answer: C



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

- A. Schwann cells
- B. Schwann nodes
- C. Nissl's granules

D. Nodes of Ranvier

Answer: D



Watch Video Solution

60. In earthworm gizzard is found in

A. 8-10 segments

B. 8th segment

C. 27th segment

D. 8-11 segments

Answer: B



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61. Heart of cockroach is :

A. 13-chambered

B. 29-chambered

C. 9-chambered

D. 6-chambered

Answer: A



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62. In cockroach, stink gland is found in :

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

Answer: B



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63. Skeletal muscles are controlled by

- A. Sympathetic nerves
- B. Para-sympathetic nerves
- C. Somatic nerves
- D. Autonomic nerves

Answer: C



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64. Haversian lamellae are the structures found in :

A. Hyaline cartilage

B. Fibrous cartilage

C. Bone

D. Myelin sheath

Answer: C



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65. The layer of cells forming tissue that appears to be multilayered but actually some of the cells extend from the basement membrane to the surface is

- A. Simple columnar epithelium
- B. Pseudostratified epithelium
- C. Stratified columnar epithelium
- D. Stratified cuboidal epithelium

Answer: B



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66. Epimysium perimysium and endomysium occur in

A. Nerve

B. Blood vessel

C. Striated muscles

D. Uterus

Answer: C



Watch Video Solution

67. Bipolar neurons occur in

A. Vertebrate embryos

B. Retina of eye

C. Brain and spinal cord

D. Skeletal muscles .

Answer: B



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68. In which one of the following organisms, its excretory organs are correctly matched?

A. Humans Kidneys, sebaceous glands and tear glands

B. Earthworm-Pharyngeal, integumentary and septal nephridia

C. Cockroach-Malpighian tubules and enteric caecae

D. Frog-Kidneys, skin and buccal epithelium

Answer: B



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69. The haemoglobin content per 100ml blood of a normal healthy individual is:

A. 5-11 g

B. 25-30 g

C. 17-20 g

D. 12-16 g

Answer: D



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70. Which one of the following pairs of structures is correctly matched with their description?

Structures	Description
(a) Tibia and fibula	Both form parts of knee joint
(b) Cartilage and cornea	No blood supply but do require oxygen for respiratory need
(c) Shoulder joint and elbow joint	Ball and socket type of joint
(d) Premolars and molars	20 in all and 3-rooted



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71. Malpighian tubules are analogous to

A. Trachea of cockroach

B. Gills

C. Flame cells

D. None of these

Answer: C



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72. Cloacal aperture of frog is used to pass out

:

A. Sperms

B. Faeces

C. Urine

D. All of these

Answer: D



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73. Chitellum in earthworm includes segments.

A. 7,8 and 9

B. 10 to 12

C. 14 to 16 .

D. 18 to 20

Answer: C



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74. Tendons and ligaments are

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

Answer: B



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

A. *Eudrilus engeniae*

B. *Eisenia fetidae*

C. *Perionyx excavatus*

D. *Pheretima posthuma*

Answer: D



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

A. Plantulae

B. Tibia

C. Pretarsus

D. Arolium

Answer: A



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77. Myelin sheath is formed by

- A. Ranvier cel
- B. Muscle cell
- C. Schwann cell
- D. Axon

Answer: C



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78. Yolk plug can be seen during which developmental process of frog?

- A. Gastrulation
- B. Blastulation
- C. Cleavage
- D. Organogenesis

Answer: A



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79. Which type of cleavage is found in frog?

A. Holoblastic

B. Teloblastic

C. Spiral

D. Biradial

Answer: A



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80. What is number of spinal nerves in frog?

A. 8 Pairs

B. 10 Pairs

C. 11 Pairs

D. 12 Pairs

Answer: B



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81. Haversian canals are present in

A. Teeth

B. Muscles

C. Bone

D. Blood

Answer: C



Watch Video Solution

82. The head of cockroach lacks

A. Cardo

B. Gena

C. Trochanter

D. Frons

Answer: C



Watch Video Solution

83. Skin is a

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

Answer: D



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84. Hyaline cartilage does not have :

A. Fibres

B. Lacunae

C. Cells

D. Blood capillaries

Answer: D



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85. Which of these is not found in connective tissue

- A. Hyaluronic acid
- B. Basement membrane
- C. Collagen fibres
- D. Fluid

Answer: B



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86. Which type of tissue forms glands?

A. Epithelial

B. Connective

C. Nervous

D. Muscular

Answer: A



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87. Fibroblasts , macrophages and mast cells are present in

A. Cartilage tissue

B. Adipose tissue

C. Areolar tissue

D. Glandular epithelium

Answer: C



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88. Seminal vesicles in *Pheretima* are located in the segments

A. 14 to 18

B. 10 to 13

C. 6 to 10

D. 6 to 9

Answer: D



Watch Video Solution

89. The outer covering of cartilage is called

A. Peritoneum

B. Periosteum

C. Endosteum

D. Perichondrium

Answer: D



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90. Heparin is secreted by

A. Kidney cells

B. Blood cells

C. Bone marrow

D. Liver cells

Answer: D



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91. Stereocilia occur in

A. Pseudostratified epithelium of trachea

B. Columnar epithelium of stomach

C. Stratified columnar epithelium of
pharynx

D. Pseudostratified columnar epithelium of
epididymis

Answer: D



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92. The lateral hearts in earthworm

- 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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93. Which statement is incorrect?

- A. Mast cells and basophils secrete histamine and heparin
- B. Mast cells are smaller than basophils with a bilobed nucleus.

C. Mast cells are long lived, basophils are short lived.

D. Mast cells are relatively sessile, basophils are mobile.

Answer: B



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94. In the mouth parts of cockroach the galea and lacinia form parts of the

A. Mandible

B. Maxilla

C. Labium

D. Labrum

Answer: B



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95. One very special feature in the earthworm
Pheretima is that

A. Fertilisation of eggs occurs inside the body

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

C. It has a long dorsal tubular heart

D. The S-shaped setae embedded in the integument are defensive weapons used against the enemies

Answer: B



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96. Which of the following is correctly stated as happens in 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. The food is ground by mandibles and gizzard

Answer: D



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

A. Eustachian tube and stomach lining

B. Bronchioles and Fallopian tubes

C. Bile duct and oesophagus

D. Fallopian tubes and urethra

Answer: B



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98. Tendons and ligaments are specialized types of

A. Areolar tissue

B. Adipose tissue

C. Fibrous C.T.

D. Epithelial tissue

Answer: C



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99. Compound eyes are found in

A. Frog

B. Earthworm

C. Roundworm

D. Cockroach

Answer: D



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100. Earthworms are hermaphrodite and reproduce primarily by

A. Self-fertilisation

B. Cross-fertilisation

C. Asexually

D. All of these

Answer: B



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101. The process of increasing fertility of soil by the earthworms is called-

A. Worm casting

B. Vermicomposing

C. Compost bedding

D. None of these

Answer: B



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102. In Earthworms setae are present in all segments except

A. First and last segments

B. First and the clitellum

C. First segment

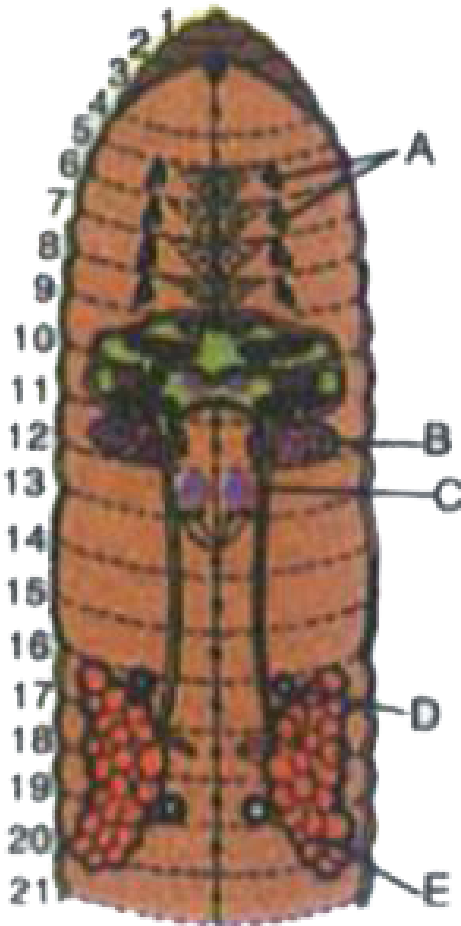
D. First , clitellum and last segments

Answer: D



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103. In the diagram of the reproductive system of earthworm A, B, C, D and E represent:



A. A = Seminal vesicle, B = Spermathecae, C = Prostate gland, D = Ovary, E = Accessory

gland

B. A = Seminal vesicle, B = Ovary, C =
Accessory gland, D = Spermathecae, E =
Prostate gland

C. A = Spermathecae, B = Seminal vesicle, C
= Accessory gland, D = Ovary, E = Prostate
gland

D. A = Spermathecae, B = Seminal vesicle, C
= Ovary, D = Accessory gland, E = Prostate
gland.

Answer: D



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104. About how many times does the nymph of the *Periplaneta americana* undergo moulting before becoming an adult ?

A. 4

B. 7

C. 17

D. 13

Answer: D



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105. Fibroblasts, macrophages and mast cells are seen in

- A. Epithelial tissue
- B. Connective tissue
- C. Skeletal muscle tissue
- D. Smooth muscle tissue

Answer: B



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106. Read the statements with regard to frog.

Which of the statement(s) is/are correct and incorrect

1. The medulla oblongata passes out through foramen of Monro and continues into spinal cord
2. Vasa efferentia are 10 -12 in number that arise from testes

3. Ovaries have no functional connection with kidneys

4. Frogs are uricotellic

A. 1, 2 and 3 are correct but 4 is incorrect

B. 1 and 2 are correct while 3 and 4 are incorrect

C. 2 and 3 are correct while 1 and 4 are incorrect

D. 2, 3 and 4 are correct while 1 is incorrect

Answer: C



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107. Stratified epithelium is found in :

A. Seminiferous tubule

B. Fallopian tube

C. Nasal cavity

D. Kidney tubule

Answer: C



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108. 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

Answer: B



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109. Compared to those of humans, the erythrocytes in 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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110. Select the correct statement from the ones given below with respect to *Periplaneta americana*

A. Nervous system located dorsally, consists of 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 Malpighian tubules present at junction of midgut and hindgut

D. Grinding of food is carried out only by mouth parts

Answer: B



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111. What is common between earthworm and Periplaneta?

- A. Both have red coloured blood
- B. Both possess anal styles
- C. Both have Malpighian tubules
- D. Both have segmented body

Answer: D



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112. The ingrowth of exoskeleton in the head of cockroach is called

A. Notum

B. Apodemes

C. Pleura

D. Tentorium

Answer: D



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113. Which of the following is absent in the coelomic fluid of earthworm ?

A. Salts

B. Haemoglobin

C. Corpuscles

D. Proteins

Answer: B



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114. Myoglobin is present in

A. Heart

B. Kidney

C. Muscles

D. Nerve cells

Answer: C



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115. A polysaccharide constituent found in the matrix of cartilage is:

- A. Ossein
- B. Collagen
- C. Chondroitin
- D. Hyaline

Answer: C



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116. In which segment in earthworm, the ovary is present?

A. 13th segment

B. 14th segment

C. 15th segment

D. 16th segment

Answer: A



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117. Blood-brain barrier is formed by

- A. Microglial cells
- B. Astrocytes
- C. Oligodendrocytes
- D. Ependymal cells

Answer: B



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118. Ommatidia serve the purpose of photoreception in

A. Cockroach

B. Frog

C. Humans

D. Sunflower

Answer: A



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119. The secretion of tears, milk sweat and oil are functions of which of the following tissues

A. Epithelial

B. Nervous

C. Loose connective

D. Lymphoid

Answer: A



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120. Collagen fibres are characteristic of which tissue?

A. Muscular

B. Epithelial

C. Connective

D. Nervous

Answer: C



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121. 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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122. Read the following statements and choose the correct option

(A). Blood cells secrete fibres of structural proteins called collagen or elastin.

(B) Neuroglial cells protect and support the nephrons.

(C) Osteocytes are present in spaces called lacunae.

(D) Striated muscle fibre are bundled together in a parallel fashion.

(E) Biceps are involuntary and striated

A. C and D alone are wrong

B. B and D alone are wrong

C. A and C alone are wrong

D. A,B and E along are wrong

Answer: D



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123. Find the wrongly matched pair:

A. Unicellular glandular cells—Goblet cell

B. Saliva—Exocrine secretion

C. Fusiform fibres-Smooth muscle

D. Cartilage-Areolar tissue

Answer: D



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124. Thick filaments in muscles are polymerised proteins of

A. Meromyosin

B. Actin

C. Troponin

D. Tropomyosin

Answer: A



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125. In muscle, the functional unit of contraction is

A. I-band

B. A-band

C. H-zone

D. Portion of myofibril between two successive Z-lines

Answer: D



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126. Specialized chemoreceptors located on the anterior part of earthworms are

A. Heat receptors

B. Photo receptors

C. Taste receptors

D. Pressure receptors

Answer: C



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127. In cockroaches, digestive juice is secreted
by the

A. Gizzard

B. Malpighian tubules

C. Crop

D. Hepatic caeca

Answer: D



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

- A. Absence of myofibrils in central portion of A-band
- B. Central gap between myosin filaments in A-band
- C. Central gap between actin filaments extending through myosin filaments in A-band
- D. Extension of myosin filaments in central portion of A-band

Answer: C



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

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

Answer: C



130. Histology deals with the study of :

A. Structures seen with naked eyes

B. Tissues

C. Changes in form and structure during
development

D. Cell

Answer: B



131. Most of our cells are surrounded by

A. blood

B. fluid equivalent to sea water in salt
composition

C. Interstitial fluid

D. pure water

Answer: C



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132. In cockroaches, the flow of haemolymph is:

A. Heart → Head haemocoel →

Perivisceral sinus → Pericardial sinus

→ Ostia → Heart

B. Heart → Pericardial sinus → head

haemocoel → Perivisceral sinus →

Ostia → Heart

C. Heart → Head haemocoel →

Perivisceral sinus → Ostia →

Pericardial sinus → Ostia

D. Heart → Ostia → Perivisceral sinus

→ Pericardial sinus → Head

haemocoel → Ostia

Answer: A



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133. Choose the correctly matched pair:

A. Areolar Tissue-Loose connective tissue

B. Cartilage-Loose connective tissue

C. Tendon-Specialized connective tissue

D. Adipose tissue-Dense connective tissue

Answer: A



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134. The targa, sterna and pleura of cockroach body are joined by

A. Cementing glue

B. Muscular tissues

C. Arthroial membrane

D. Cartilage

Answer: C



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135. Which one of the following is correct?

A. Plasma = Blood-Lymphocytes

B. Serum= Blood + Fibrinogen

C. Lymph = Plasma + RBC + WBC

D. Blood = Plasma + RBC + WBC + Platelets

Answer: D



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

A. Ammonia

B. Potassium urate

C. Urea

D. Calcium carbonate

Answer: B



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137. Intercalated discs occur:

A. Between neurons

B. Between cardiac muscle fibres

C. At the junction of muscle and nerve cells

D. In striped muscles

Answer: B



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138. Which is not the function of lymph

A. Transports RBCs

B. Drains excess tissue fluid

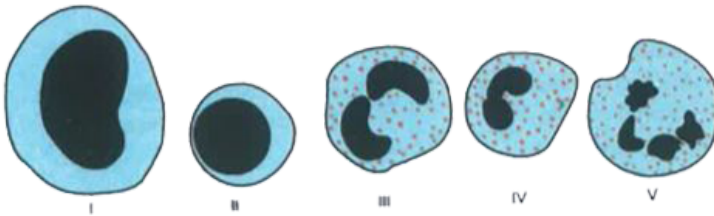
C. Transports lymphocytes and antibodies

D. Transports absorbed fat

Answer: A

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139. Which are the phagocytic cells from given diagram?



A. I and V

B. I and III

C. II and IV

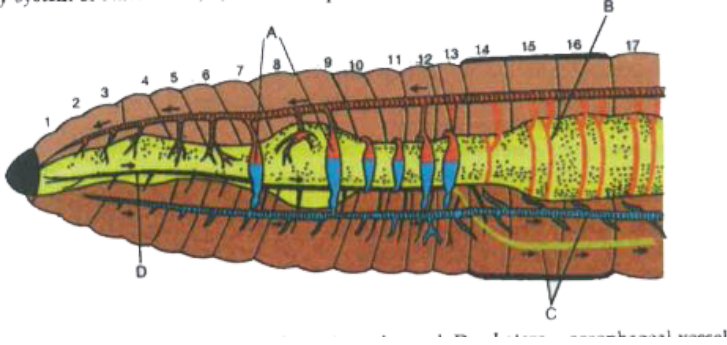
D. I and II

Answer: A



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140. In the circulatory system of Pheretima A, B, C and D represent



A. A - Lateral hearts, B - Subneural vessel, C-
 Commissural vessel, D = Latero -
 oesophageal vessel

B. A - Lateral hearts, B - Latero -
 oesophageal vessel, C-Subneural vessel,
 D-Commissural vessel

C. A - Lateral hearts, B - Commissural vessel,

C - Subneural vessel, D- Latero -

oesophageal vessel

D. A-Commissural vessel, B - Lateral hearts,

C - Latero - oesophageal vessel D-Sub -

neural vessel

Answer: C



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141. The structure in earthworm which serves as a wedge to force open cracks in the soil is

A. Peristomium

B. Setae

C. Clitellum

D. Prostomium

Answer: D



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142. Which among these is not involved in excretion in cockroaches

A. Malpighian tubules

B. Nephrocytes

C. Uricose glands

D. Maxillary palps

Answer: D



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143. Frogs

- A. are uricotelic
- B. have olfactory lobes in mid brain
- C. do not have renal portal system
- D. have lymphatic system

Answer: D



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144. Most of the cartilages in vertebrate embryo are replaced in adult by

A. Blood

B. Bones

C. Tendons

D. Ligaments

Answer: B



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145. Which one is a specialised connective tissue among these

A. Adipose tissue

B. Bones

C. Areolar tissue

D. Fibroblasts

Answer: B



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146. Muscles of heart are

- A. Striated and voluntary
- B. Non-striated and voluntary
- C. Striated, unbranched and involuntary
- D. Striated , branched and involuntary

Answer: D



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147. Skeletal muscle fibre is a "Syncytium"

which means it is

- A. Made up of many fibres
- B. Made up of many proteins
- C. Long and slender
- D. Multinucleated

Answer: D



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

- A. Vas deferens
- B. Seminal vesicles
- C. Mushroom gland
- D. Testes

Answer: B



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149. Smooth muscles are

- A. Voluntary, spindle-shaped, uninucleate
- B. Involuntary, fusiform, non-striated
- C. Voluntary, multinucleate, cylindrical
- D. Involuntary, cylindrical, striated

Answer: B



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150. Which type of tissue correctly matches with its location

A. Cuboidal epithelium-Lining of stomach

B. Smooth muscles-wall of intestine

C. Areolar tissue-Tendon

D. Transitional epithelium-Tip of nose

Answer: B



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

A. Metamerically-segmented body

B. Schizocoelom as body cavity

C. Intermediate and radial cleavage during embryonic development

D. Exoskeleton formed of N-Acetyl glucosamine

Answer: C



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152. 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 poikilotherm

(b) Frog does not have any coronary circulation

(c) Heart is "myogenic" in nature

(d) Heart is autoexcitable

A. Only (3)

B. Only (4)

C. (1) and (2)

D. (3) and (4)

Answer: D



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153. Select the correct route for the passage of sperms in male frogs

A. Testes → Bidder's canals → kidneys

→ vasa efferentia → urinogenital

duct → cloaca

B. Testes → vasa efferentia → kidneys

→ seminal vesicles → urinogenital

duct → cloaca

C. Testes → vasa efferentia → kidneys

→ Bidder's canal → ureters →

cloaca

D. Testes → vasa efferentia → kidneys

→ Bidder's canal → urinogenital

duct → cloaca

Answer: D



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154. Nissi bodies are mainly composed of

A. Proteins and lipids

B. Nucleic acids and SER

C. DNA and RNA

D. Free ribosomes and RER

Answer: D



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155. Match the items given in column-I with those in column-II and select the correct option given below:

Column-I	Column-II
1. Fibrinogen	(i) Osmotic balance
2. Globulin	(ii) Blood clotting
3. Albumin	(iii) Defence mechanism

A. 1 (iii) 2 (ii) 3 (i)

B. 1 (i) 2 (iii) 3 (ii)

C. 1 (i) 2 (i) 3 (iii)

D. 1 (ii) 2 (iii) 3 (i)

Answer: D



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

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

Answer: C



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157. Select the correct sequence of organs in the alimentary canal of cockroach starting from mouth:

A. Pharynx → Oesophagus → Crop →
Gizzard → Ileum Colon → Rectum

B. Pharynx → Oesophagus → Gizzard
→ Crop → Ileum → Colon →
Rectum

C. Pharynx → esophagus → Gizzard
→ Ileum → Crop → Colon →

Rectum

D. Pharynx → Oesophagus → Ileum

→ Crop → Gizzard → Colon →

Rectum

Answer: A



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158. The ciliated epithelial cells are required to move particles or mucus in a specific direction.

In humans, these cells are mainly present in :

A. Bile duct and bronchioles

B. Fallopian tubes and pancreatic duct

C. Eustachian tube and salivary duct

D. Bronchioles and Fallopian tubes

Answer: D



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159. Mark the correct one regarding typhlosole:

A. Internal median fold of ventral intestinal wall

B. Extends from 20th to 35th segments

C. Increases surface area for absorption

D. Decreases surface area for absorption

Answer: C

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160. Which is not true for cockroach?

A. 1 pair of compound eyes

B. Forewings, called tegmina, used for flight are attached to 1st thoracic segment

C. 1 pair of maxilla and mandible

D. Has 10 abdominal segments

Answer: B



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161. The vitamins required to maintain bone density

A. Vitamin A and C

B. Vitamin C and D

C. Vitamin B and C

D. Vitamin A and E

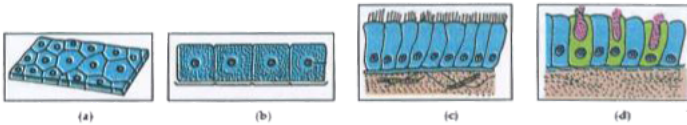
Answer: B



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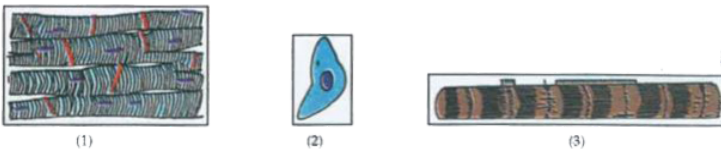
Competition File Cbse Pmt Main Examination Questions

1. Identify A to D and mention one location and one function in the body .



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2. (a) Identify the tissues 1,2 and 3.



(b) (1) muscles are associated with locomotion and are innervated by (2) nervous system. Whereas (3) muscles are innervated by autonomic nervous system and associated (4) muscles are associated with (5) nervous system associated with pumping of blood (6) and (7) are uninucleated where as (8) is multinucleated. The muscle (9) and (10) are involuntary where as (11) muscle is voluntary.



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3. Differentiate cockroach and frog according to their position to heart and organs of respiration.



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4. Find out the false statements and correct them by changing only underlined words :

(a) Earthworm has true coelom and is hermaphrodite.

(b) The nitrogenous waste product in human is uric acid and urea in cockroach.



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

- A. Columnar epithelium
- B. Connective tissue
- C. Smooth muscle tissue
- D. Squamous epithelium

Answer:



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6. The type of muscles present in our

A. Thigh are striated and voluntary

B. Intestine are striated and involuntary

C. Upper arm are smooth muscle fibres

fusiform in shape

D. Heart are involuntary and unstriated
smooth muscles

Answer: A



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7. 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 if 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. $(A, B, C, D), (F, F, T, T,)\}$

B. $(A, B, C, D), (F, T, T, F)\}$

C. $(A, B, C, D), (T, F, F, T)\}$

D. $(A, B, C, D), (T, T, F, F)\}$

Answer: A



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

A. Setae - defence against predators

B. Typhlosole – storage of extra nutrients

C. Clitellum – secretes cocoon

D. Gizzard – absorbs digested food

Answer: A



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9. Frogs differ from humans in possessing

A. Nucleated red blood cells

B. Thyroid as well as Parathyroid

C. Paired cerebral hemispheres

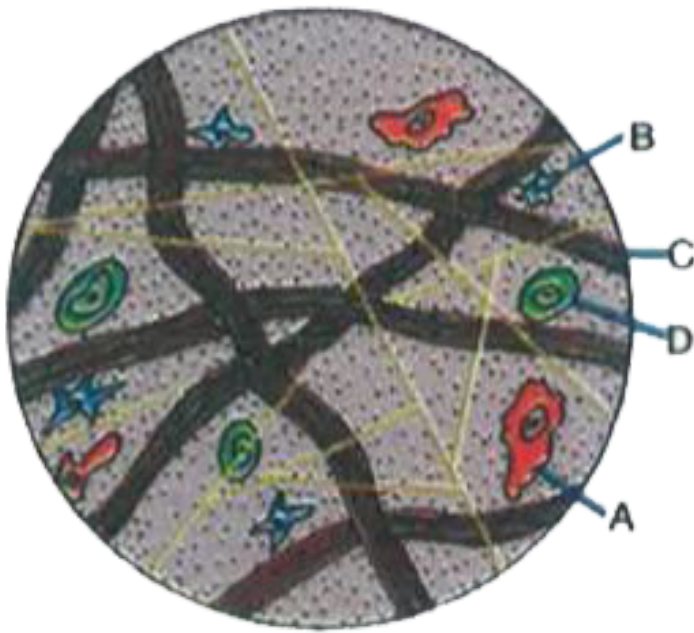
D. Hepatic portal system

Answer: A



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10. 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	B	C	D
(a)	Macrophage	Fibroblast	Collagen fibres	Mast cell
(b)	Mast cell	Macrophage	Fibroblast	Collagen fibres
(c)	Macrophage	Collagen fibres	Fibroblast	Mast cell
(d)	Mast cell	Collagen fibres	Fibroblast	Macrophage



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

A. Calcitonin and thymosin-thyroid hormones.

B. Pepsin and prolactin-two digestive enzymes secreted in stomach.

C. Troponin and myosin-complex proteins in striated muscles.

D. Secretin and rhodopsin-polypeptide hormones.

Answer: C



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

A. ligament

B. areolar tissue

C. bone

D. cartilage

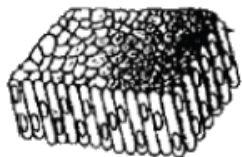
Answer:



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13. The four sketches (A, B, C and D) given below, represent four different types of animal tissues. Which one of these is correctly identified in the options given, along with its correct location and function ?

(A)



(B)



(C)



(D)



	Given Figure	Tissue	Location	Function
(1)	(D)	Smooth muscle tissue	Heart	Contraction
(2)	(A)	Columnar epithelium	Nephron	Secretion and absorption
(3)	(B)	Glandular epithelium	Intestine	Secretion
(4)	(C)	Collagen fibres	Cartilage	Attach skeletal muscles to bones



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Competition File Matching Type Questions

1. Match the terms in column A with suitable terms in Column B :

Column A	Column B
(i) Nissl's granules	(a) Elastic cartilage
(ii) Chondrin	(b) Adipose tissue
(iii) Pinna	(c) Goblet cells
(iv) Histiocytes	(d) Smooth muscles
(v) Camel's hump	(e) Intestine
(vi) Visceral organs	(f) Schwann cells
(vii) Afferent nerve process	(g) Cyton
(viii) Microvilli	(h) Dendron
(ix) Mucous	(i) Phagocytosis
(x) Nerve fibres	(j) Cartilage
(xi) Germinal epithelium	(k) Button terminaux
(xii) Synapse	(l) Tern tissue
(xiii) Lactic acid	(m) Crypts
(xiv) Bichat	(n) Muscle fatigue



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2. Match the terms in column A with suitable terms in Column B :

Column A	Column B
(i) Genital papillae	(a) Four pairs
(ii) Porphyrin	(b) Wing cover
(iii) Setae	(c) Testes
(iv) Tegmina	(d) Pelage
(v) Lateral sclerites	(e) 1st segment of earthworm
(vi) Vulva	(f) Labium
(vii) Peristomium	(g) 17th and 19th segments
(viii) Hairy coat of rabbit	(h) Amplexusory pad
(ix) Scrotal sacs	(i) Pigment in skin
(x) Spermathecal pores	(j) External genitalia of female rabbit
(xi) Lower lip	(k) Pleura
(xii) Index finger	(l) Locomotion



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3. Match Column A with Column B and select the correct options :

Column A	Column B
A. Ligamenta flava	(i) Fat depot
B. Costal cartilage	(ii) Plasma cells
C. Phagocytosis	(iii) Reticular cells
D. Adipose tissue	(iv) Connect adjacent vertebra
E. Cartwheel cells	(v) Sternal parts of ribs

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

B. A-iv, B-v , C-ii, D-v, E-iii

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

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

Answer:



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Competition File Assertion Type Questions

1. Assertion : Cardiac muscles contract rapidly like striated muscles but do not undergo fatigue.

Reason : Cardiac muscles contract rhythmically.

A. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: A



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2. Assertion : Tendons are very tough and inelastic.

Reason: Tendons join the muscles to the bone.

A. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: B



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3. Assertion : Whale has a thick layer of fat, called blubber, below its skin.

Reason: It uses this fat as the source of energy when deep in water.

A. If both Assertion and Reason are true but Reason is correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer:



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4. Assertion : Serum cannot clot the blood.

Reason: Serum is obtained from blood plasma

minus blood-clotting proteins like

prothrombin and fibrinogen.

A. If both Assertion and Reason are true and Reason is correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: A



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5. Assertion : Synaptic knob of axon has large number of synaptic vesicles.

Reason: Conduction of nerve impulse is always from axon to dendron.

A. If both Assertion and Reason are true and assertion is correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation

of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: B



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6. Assertion: Cartilage and bone are rigid connective tissues.

Reason: Blood is a connective tissue.

A. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: B



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7. Read the assertion and reason carefully to mark the correct option out of the options given below:

Assertion : Transmission of the nerve impulse across a synapse is accomplished by neurotransmitters.

Reason : Transmission across a synapse usually requires neurotransmitters because there is small space i.e. synaptic cleft, that separates one neuron from another.

A. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: A



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8. Assertion : Cold-blooded animals have no subcutaneous fat layer.

Reason: Cold-blooded animals use their fat for metabolic processes during hibernation.

A. If both Assertion and Reason are true and Reason is correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation

of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: A



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9. Assertion : In earthworm, setae show perichaetine arrangement.

Reason: Setae are present in a ring in middle of most of segments.

A. If both Assertion and Reason are true and Reason is correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: A



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10. Assertion : Genital papillae help in copulation in earthworm.

Reason : Genital papillae lie in line with male gonopores.

A. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation

of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: B



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11. Assertion : Cockroach is unisexual and shows sexual dimorphism.

Reason: Male cockroach has only anal cerci while female cockroach has anal styles as well.

A. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: C



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12. Assertion: Cockroach has biting and chewing type mouth parts.

Reason: Mandibles have teeth to cut and chew the food in cockroach.

A. If both Assertion and Reason are true
but Reason is not a correct explanation
of Assertion

B. If both Assertion and Reason are true
but Reason is not a correct explanation

of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: A



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13. Assertion : Cockroach has two pairs of legs and three pairs of wings.

Reason: Legs are used to jump while wings are used to fly.

A. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: D



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14. Assertion : Mating call is produced by male frog.

Reason: Vocal sacs of male frog act as resonators.

A. If both Assertion and Reason are true and Reason is a correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation

of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: A



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15. Assertion : In frog, copulatory pads lie on the pollex digit.

Reason: These copulatory pads help in transfer of sperms.

A. If both Assertion and Reason are true and Reason is correct explanation of Assertion

B. If both Assertion and Reason are true but Reason is not a correct explanation of Assertion.

C. If Assertion is true but Reason is False

D. If both Assertion and Reason are false

Answer: D



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Competition File Additional Multiple Choice Questions

1. Which of the following substances, if introduced into the blood system, would cause coagulation of blood at the site of its introduction

A. Heparin

B. Fibrinogen

C. Prothrombin

D. Thromboplastin

Answer: D



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2. Four healthy people in their twenties got involved in injuries resulting in damage and death of few cells of the following. Which of the cells are least likely to be replaced by new cells

A. Neurons

B. Liver cells

C. Osteocytes

D. Malpighian layer of skin

Answer: A



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3. Grey crescent is the area

A. At the point of sperm entry into ovum

B. Just opposite to the site of sperm entry

into ovum

C. At the animal pole

D. At the vegetal pole

Answer: B



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4. What do epithelial cells of the intestine involved in food absorption have on their surface ?

- A. Pinocytic vesicles
- B. Phagocytic vesicles
- C. Zymogen granules
- D. Microvilli

Answer: D



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5. Spermathecae in earthworm is

- A. For producing sperms

B. For storage of sperms obtained during copulation

C. Both (a) and (b)

D. None of these

Answer: B



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6. 9th pair of cranial nerve in frog is

A. Hypoglossal

B. Glossopharyngeal

C. Vagus

D. Trigeminal

Answer: B



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7. The adhesive pads(soft-pads) present in legs of cockroach are

A. Galea

B. Lacinea

C. Glossa

D. Plantulae

Answer: D



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8. Formation of red blood is called

A. Anaemia

B. Haemolysis

C. Plasmolysis

D. Haemopoiesis

Answer: D



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9. Life period of mammalian erythrocytes is :

A. 120 days

B. 180 days

C. 140 days

D. 220 days

Answer: A



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10. Mark the odd one:

A. Monocytes

B. Lymphocytes

C. Neutrophils

D. Erythrocytes

Answer: D



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11. Nerve cell do not divide because they do not have

A. Nucleus

B. Golgi body

C. Centrosome

D. Mitochondria

Answer: C



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12. Inter-articulated disc is found in

A. Muscles of arms

B. Vertebrae

C. Muscles of legs

D. Pubic symphysis

Answer: B



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13. Which of the following is phagocytic ?

A. Monocyte

B. RBC

C. Eosinophil

D. Basophil

Answer: A



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14. Heparin is secreted by

A. Liver

B. Kidney

C. Spleen

D. Blood cells

Answer: A



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15. Intervertebral disc consists of a shock absorber connective tissue known as

A. Hyaline cartilage

B. Elastic cartilage

C. Fibro-cartilage

D. Reticulo-cartilage

Answer: C



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16. In Earthworm the dorsal wall of the intestine from the 26th segment to 95th segment forms a median internal fold called

A. Trochophore

B. Typhlosole

C. Clitellum

D. Trachea

Answer: B



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17. Vagina, oesophagus, urethra contain which type of tissue?

- A. Ciliated epithelium
- B. Columnar epithelium
- C. Simple squamous epithelium
- D. Stratified squamous epithelium

Answer: D



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18. Intervertebral disc is made up of

- A. Hyaline cartilage
- B. Calcified cartilage
- C. Fibro-cartilage
- D. Elastic cartilage

Answer: C



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19. In Cockroach enzymes cellulase is produced by

A. Saliva

B. Bacteria in midgut

C. Lining cells of midgut

D. Cellulose is not metabolised

Answer: D



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20. Areolar connective tissue joins

- A. Fat body with muscles
- B. Integument with muscles
- C. Bones with muscles
- D. Bones with bones

Answer: B



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21. Mast cells secrete

A. Heparin

B. Myoglobin

C. Histamine

D. Haemoglobin

Answer: A



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22. Earthworms are

A. Ureotelic when plenty of water is available

B. Uricotelic when plenty of water is available

C. Uricotelic when conditions of water scarcity

D. Ammonotelic when plenty of water is available

Answer: D



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23. Which one of the following has an open circulatory system ?

A. Pheretima

B. Periplaneta

C. Hirudinaria

D. Octopus

Answer: B



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24. In Pheretima, septa are absent between which segments

A. 3/4 and 9/10

B. 4/5 and 8/9

C. 5/6 and 7/8

D. 7/8 and 6/7

Answer: A



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25. In cockroach, larval and nymphal characters are maintained by

A. Ecdysome

B. Salivary glands

C. Parotid glands

D. Juvenile hormone

Answer: D



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26. 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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27. In rabbit, end of a long bone is connected to another bone by:

A. Tendon

B. Ligaments

C. Muscle

D. Cartilage

Answer: B



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28. Tendons and ligaments are specialized types of

A. Nervous tissue

B. Muscular tissue

C. Epithelial tissue

D. Fibrous connective tissue

Answer: D



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29. 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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30. 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. Cuboidal epithelium

Answer: C



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31. Henson's discs are found in :

- A. Myofibrils of striated muscles
- B. Myofibrils of unstriated muscles
- C. Myofibrils of heart muscles
- D. None of the above

Answer: A



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32. Antennae of cockroach function as

A. Tactile and Olfactory receptor

B. Gustatoreceptors

C. Auditory receptor

D. Olfactory receptors

Answer: A



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33. Male and female cockroach differ due to presence or absence of:

A. Anal cerci and anal style

B. Anal cerci

C. Anal style

D. Anal setae

Answer: C



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34. Which structure is absent in male cockroach?

A. Labium

B. Phallomeres

C. Spermatheca

D. None of these

Answer: C



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35. In which one of the following preparations are you likely to come across cell junctions most frequently

- A. Hyaline cartilage
- B. Ciliated epithelium
- C. Thrombocytes
- D. Tendon

Answer: B



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36. Which one of the following pairs of structures distinguishes a nerve cell from other types of cells?

A. Nucleus and mitochondria

B. Vacuoles and fibres

C. Perikaryon and dendrites

D. Flagellum and medullary sheath

Answer: C



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37. The enteronephric nephridia of earthworm are mainly concerned with

- A. Digestion
- B. Respiration
- C. Osmoregulation
- D. Excretion

Answer: D



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38. Striped muscle fibre has

- A. One nucleus
- B. Two nuclei
- C. Many nuclei
- D. No nucleus

Answer: C



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39. Bipolar neurons occur in:

(1) Retina of eye (2) Olfactory epithelium (3)

Inner ear (4) Brain

A. 1, 2 and 3 are correct

B. 1 and 2 are correct

C. 2 and 4 are correct

D. 1 and 3 are correct

Answer: A



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40. Cardiac muscles are

(a) striated (b) nonstriated (c) voluntary (d)
involuntary

A. 1, 2 and 3 are correct

B. 1 and 2 are correct

C. 2 and 4 are correct

D. 1 and 3 are correct

Answer: D



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Chapter Practice Test

1. Cartilaginous tissue of intervertebral discs is



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2. What are vocal sacs? State their function.



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3. Differentiate between stratified and transitional epithelium.



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4. Name different types of cells found in the matrix of areolar connective tissue. Give their function.



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5. What is typhlosole? Mention its function.



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6. Draw a neat and labelled diagram of a sarcomere.



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7. Difference between bone and cartilage is



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8. Enlist the functions of plasma of blood.



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



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10. Discuss structure of heart of frog.



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Chapter Practice Test Section A

1. Select the structural and functional unit of a muscle fibre :

- A. Sarcolemma
- B. Sarcomere
- C. Sarcoplasmic reticulum
- D. Myofibril

Answer: B



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2. Instrument used to measure RBC count is :

- A. Haemometer
- B. Electrocardiograph
- C. Sphygmomanometer
- D. Haemocytometer

Answer: D



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3. Which of the following blood proteins are involved in blood clotting?

A. Prothrombin and Immunoglobins

B. Prothrombin and Albumins

C. Prothrombin and Fibrinogen

D. Fibrinogen and Globulins

Answer: C



4. Excretory organs of Earthworm are

- A. Nephridia
- B. Protonephridia
- C. Antennary glands
- D. Spermathecae

Answer: A



5. Food masticatory structure of cockroach is

A. Crop

B. Gizzard

C. Mesenteron

D. Labium

Answer: B



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6. Male frog differs from the female frog in having

- A. Vocal sacs
- B. Amplexusory pads
- C. Both of these
- D. None of these

Answer: C



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Chapter Practice Test Section B

1. Give the position, structural peculiarity and function of pseudostratified epithelium.



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2. Differentiate between tendon and ligament.



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3. Earthworm is a hermaphroditic animal but always shows cross-fertilisation. Why?



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4. What is Bidder's canal? Give its function.



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Chapter Practice Test Section C

1. What is connective tissue? Describe the structure of areolar connective tissue with the help of a labelled diagram.



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2. Tabulate differences between a cartilage and a bone .



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3. Draw a neat labelled diagram of circulatory system of earthworm. Discuss hearts of earthworm.



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4. Describe reproductive system of female cockroach with the help of a labelled diagram.



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1. Blood is commonly called red vascular connective tissue as its matrix is fluidy, mobile and fibre-free, and is red-coloured due to presence of haemoglobin in its RBCs. Blood is formed of two components: Plasma and Blood corpuscles. Its blood corpuscles are of three types Erythrocytes, Leucocytes and blood platelets. Leucocytes are of five types which are adapted to perform different functions.

Answer the following questions related to blood:

(i) List two structural peculiarities of its RBCs of human blood.

(ii) Tabulate two differences between its five types of leucocytes.

(iii) Define diapedesis .



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Chapter Practice Test Section E

1. Explain urogenital system of male frogs with the help of a well labelled diagram.



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2. (i) Draw a neat and labelled diagram of a neuron.

(ii) What are Nissl's granules? Give their function.

(iii) Define a synapse.



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