

DPP - Daily Practice Problems

Date :

Start Time :

End Time :

BIOLOGY

CB07

SYLLABUS : Structural Organisation in Animals

Max. Marks : 180

Marking Scheme : + 4 for correct & (–1) for incorrect

Time : 60 min.

INSTRUCTIONS : This Daily Practice Problem Sheet contains 45 MCQs. For each question only one option is correct. Darken the correct circle/ bubble in the Response Grid provided on each page.

1. The kind of epithelium which forms the inner walls of blood vessels is
 - (a) cuboidal epithelium
 - (b) columnar epithelium
 - (c) ciliated columnar epithelium
 - (d) squamous epithelium
2. The cell junctions called tight, adhering and gap junctions are found in
 - (a) connective tissue
 - (b) epithelial tissue
 - (c) neural tissue
 - (d) muscular tissue
3. Housefly possesses
 - (a) two pairs of wings
 - (b) one pair of wings
 - (c) three pairs of wings
 - (d) four pair of wings
4. Excretory organs of Cockroach are
 - (a) flame cells
 - (b) nephridia
 - (c) hreen glands
 - (d) malpighian tubules
5. Myoglobin is present in
 - (a) all muscle fibres
 - (b) white muscle fibres only
 - (c) red muscle fibres only
 - (d) both white and red muscle fibres
6. Intercalated discs are the communication junctions between the cells of
 - (a) cardiac muscles
 - (b) striped muscles
 - (c) adipose tissue
 - (d) nerve and striated muscles

RESPONSE
GRID

1. (a)(b)(c)(d)
6. (a)(b)(c)(d)

2. (a)(b)(c)(d)

3. (a)(b)(c)(d)

4. (a)(b)(c)(d)

5. (a)(b)(c)(d)

7. What is common among silverfish, scorpion, crab and honey bee?
 (a) Compound eyes (b) Poison glands
 (c) Jointed legs (d) Metamorphosis
8. Mast cells are associated with
 (a) exocrine glands
 (b) endocrine glands
 (c) areolar connective tissue
 (d) neural tissue
9. Lymph differs from blood in possessing
 (a) only WBCs.
 (b) more RBCs and WBCs.
 (c) more RBCs and few WBCs.
 (d) more WBCs and few RBCs.
10. Pseudostratified epithelium is found in
 (a) oesophagus (b) respiratory tract
 (c) urinary tract (d) kidney
11. Given below are four matchings of an animal and its kind of respiratory organ :
 (i) Silver fish – trachea
 (ii) Scorpion – book lung
 (iii) Sea squirt – pharyngeal gills
 (iv) Dolphin – skin
 The correct matchings are
 (a) (iii) and (iv) (b) (i) and (iv)
 (c) (i), (ii) and (iii) (d) (ii) and (iv)
12. Tendons and ligaments are the examples of
 (a) areolar connective tissue
 (b) adipose tissue
 (c) dense regular connective tissue
 (d) loose connective tissue
13. Major inorganic component of vertebrate bone is
 (a) calcium carbonate
 (b) calcium phosphate
 (c) sodium hydroxide
 (d) potassium hydroxide
- (a) mast cells (b) fibroblast
 (c) histocytes (d) melanocytes
15. Which of the following is not a granulocyte?
 (a) Lymphocyte (b) Neutrophil
 (c) Basophil (d) Eosinophil
16. The type of epithelial cells which line inner surface of fallopian tubes, bronchioles and small bronchi are known as
 (a) squamous epithelium (b) columnar epithelium
 (c) ciliated epithelium (d) cubical epithelium
17. Male and female cockroaches can be distinguished externally through
 (a) anal styles in male
 (b) anal cerci in female
 (c) anal style and antennae in females
 (d) both (b) and (c)
18. The long bones are hollow and connected by air passage. They are characteristic of
 (a) aves (b) mammalia
 (c) reptilia (d) sponges
19. The most active phagocytic white blood cells are
 (a) neutrophils and monocytes
 (b) neutrophils and eosinophils
 (c) lymphocytes and macrophages
 (d) eosinophils and lymphocytes
20. In the mouthparts of the cockroach, the organ of mastication is
 (a) labium (b) maxillae
 (c) mandibles (d) labrum
21. Which one of the following groups of structures/organs have similar function?
 (a) Typhlosole in earthworm, intestinal villi in rat and contractile vacuole in *Amoeba*.
 (b) Nephridia in earthworm, malpighian tubules in cockroach and urinary tubules in rat.
 (c) Antennae of cockroach, tympanum of frog and clitellum of earthworm.
 (d) Incisors of rat, gizzard (proventriculus) of cockroach and tube feet of starfish.

**RESPONSE
GRID**

- | | | | | |
|------------------|------------------|------------------|------------------|------------------|
| 7. (a)(b)(c)(d) | 8. (a)(b)(c)(d) | 9. (a)(b)(c)(d) | 10. (a)(b)(c)(d) | 11. (a)(b)(c)(d) |
| 12. (a)(b)(c)(d) | 13. (a)(b)(c)(d) | 14. (a)(b)(c)(d) | 15. (a)(b)(c)(d) | 16. (a)(b)(c)(d) |
| 17. (a)(b)(c)(d) | 18. (a)(b)(c)(d) | 19. (a)(b)(c)(d) | 20. (a)(b)(c)(d) | 21. (a)(b)(c)(d) |

22. Which of the following statements are wrong?
 (i) Leucocytes disintegrate in the spleen and liver.
 (ii) RBC, WBC and blood platelets are produced by bone marrow.
 (iii) Neutrophils bring about destruction and detoxification of toxins of protein origin.
 (iv) The important function of lymphocytes is to produce antibodies.
 (a) (i) and (ii) only (b) (i) and (iv) only
 (c) (i) and (iii) only (d) (ii) and (iii) only
23. Malpighian tubules are the excretory organs in
 (a) Cockroach (b) Platyhelminthes
 (c) *Ascaris* (d) *Pila*
24. Young one of the cockroach is called
 (a) Naid (b) Grub
 (c) Nymph (d) Maggot
25. Cilia, Flagella and microvilli are associated with the
 (a) Connective tissue (b) Epithelial tissue
 (c) Nervous tissue (d) Muscular tissue
26. In which of the following animals, respiration occurs without any respiratory organ?
 (a) Frog (b) Fish
 (c) Cockroach (d) Earthworm
27. Which of the following type of cell junction is not found in animal tissues ?
 (a) Desmosome (b) Tight junction
 (c) Gap junction (d) Plasmodesmata
28. Which one of the following cellular components of the blood is responsible for the production of antibodies?
 (a) Thrombocyte (b) Lymphocyte
 (c) Monocyte (d) Erythrocyte
29. Sprain is caused due to the excessive pulling of
 (a) Muscles (b) Tendons
 (c) Ligaments (d) All of the above
30. In cockroach, the corpora allata is
 (a) A sense organ (b) A tactile organ
 (c) An endocrine organ (d) A digestive gland
31. Which of the following is incorrect w.r.t structure/gland of cockroach and its total number in body?
 (a) Collateral glands in female cockroach - 2
 (b) Malpighian tubules - 100- 150
 (c) Spiracles - 10
 (d) Ommatidia in each compound eye - 2000
32. The function of basement membrane in epithelial tissue is to
 (a) Facilitate communication of cells with each other
 (b) Allow rapid ion transfer among cells
 (c) Separate the epithelial tissue from underlying connective tissue
 (d) Produce multiple layers of cells in a compound epithelium
33. All among the following are function of connective tissue except
 (a) Binding support
 (b) Fat storage
 (c) Body defense and transport
 (d) Propelling mucus towards the pharynx
34. Mark the statement that is incorrect for smooth muscles.
 (a) Smooth muscles form the muscular component of the visceral organs such as blood vessels, urinary bladder, ciliary body etc.
 (b) Smooth muscles cells do not have the troponin-tropomyosin mechanism of controlling contraction
 (c) Irritability is shown by all smooth muscles except ciliary muscles
 (d) Hair root muscles and muscles on the large blood vessels are in example of multi-unit smooth muscles
35. The avascular nature of cartilage is responsible for its
 (a) Flexibility
 (b) Slow repair
 (c) Suitability for embryonic endoskeleton
 (d) Transparent consistency

**RESPONSE
GRID**

- | | | | | |
|---------------------|---------------------|---------------------|---------------------|---------------------|
| 22. (a) (b) (c) (d) | 23. (a) (b) (c) (d) | 24. (a) (b) (c) (d) | 25. (a) (b) (c) (d) | 26. (a) (b) (c) (d) |
| 27. (a) (b) (c) (d) | 28. (a) (b) (c) (d) | 29. (a) (b) (c) (d) | 30. (a) (b) (c) (d) | 31. (a) (b) (c) (d) |
| 32. (a) (b) (c) (d) | 33. (a) (b) (c) (d) | 34. (a) (b) (c) (d) | 35. (a) (b) (c) (d) | |

36. Match Column-I with Column-II and select the correct option from the codes given below.

Column-I	Column-II
A. Hyaline cartilage	I. Pectoral girdle of frog
B. Fibrous cartilage	II. Long bones; sternum; ribs
C. Elastic cartilage	III. Pubic symphysis
D. Calcified cartilage	IV. Eustachian tube; epiglottis
(a) A-I; B-II; C-III; D-IV	
(b) A-II; B-III; C-IV; D-I	
(c) A-II; B-IV; C-III; D-I	
(d) A-IV; B-III; C-II; D-I	

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

- (a) squamous epithelium
(b) columnar epithelium
(c) ciliated epithelium
(d) cubical epithelium

38. The wall of heart is thick due to

- (a) Pericardium (b) Epicardium
(c) Myocardium (d) Endocardium

39. The strongest cartilage is

- (a) Hyaline cartilage
(b) Elastic cartilage
(c) Fibrous cartilage
(d) None of the above

40. Nissl's granules are found in cyton of nerve cells. These have affinity for basic dyes. The granules are made up of

- (a) Protein (b) DNA
(c) Amino acids (d) RNA

41. The inability to absorb digested nutrients may be due to damage of which type of epithelium?

- (a) Ciliated columnar
(b) Simple columnar
(c) Simple squamous
(d) Simple cuboidal

42. The presence of a basement membrane is typical of most

- (a) Epithelial tissues
(b) Connective tissues
(c) Nervous tissues
(d) Muscle tissues

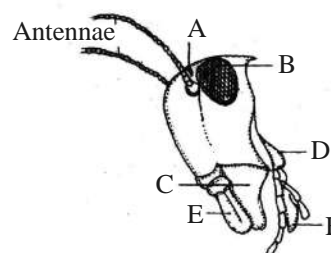
43. The most appropriate definition of Neuroglial cells are that they are

- (a) Nonsensory supporting cells
(b) Secretory cells
(c) Sensory cells
(d) Sensory and supporting cells

44. Covering around bone is called

- (a) Perichondrion
(b) Periosteum
(c) Epiosteum
(d) Endosteum

45. The figure given below shows the head region of cockroach. Identify A to F.



- (a) A- Compound eye, B-Ocellus, C-Maxilla, D-Mandible, E-Labrum, F-Labium
(b) A- Ocellus, B-Compound eye, C-Mandible, D-Maxilla, E-Labrum, F-Labium
(c) A- Ocellus, B-Compound eye, C-Mandible, D-Maxilla, E-Labium, F-Labrum
(d) A- Ocellus, B-Compound eye, C-Maxilla, D-Mandible, E-Labrum, F-Labium

**RESPONSE
GRID**

36. (a)(b)(c)(d)	37. (a)(b)(c)(d)	38. (a)(b)(c)(d)	39. (a)(b)(c)(d)	40. (a)(b)(c)(d)
41. (a)(b)(c)(d)	42. (a)(b)(c)(d)	43. (a)(b)(c)(d)	44. (a)(b)(c)(d)	45. (a)(b)(c)(d)

DAILY PRACTICE PROBLEM DPP CHAPTERWISE 7 - BIOLOGY

Total Questions	45	Total Marks	180
Attempted		Correct	
Incorrect		Net Score	
Cut-off Score	40	Qualifying Score	55
Success Gap = Net Score – Qualifying Score			
Net Score = (Correct × 4) – (Incorrect × 1)			

HINTS & SOLUTIONS

DPP /CB07

1. (d) Squamous epithelium is formed of thin discoidal and polygonal cells that fit like tiles in a floor, so is also called pavement epithelium. It is found in the walls of blood vessels, in the alveoli of lungs for exchange of gas, and in Bowman's capsule of nephron for ultra filtration.
2. (b) The cell junctions called tight, adhering and gap junctions are found in epithelial tissue. Epithelial tissue covers the whole surface of the body. It is made up of cells closely packed and arranged in one or more layers.
3. (b) 4. (d)
5. (d) Myoglobin is a single-chain globular protein of 153 amino acids, containing a heme (iron-containing porphyrin) prosthetic group in the center around which the remaining apoprotein folds. It has a molecular weight of 16,700 daltons, and is the primary oxygen-carrying pigment of muscle tissues. Unlike the blood-borne hemoglobin, to which it is structurally related, this protein does not exhibit cooperative binding of oxygen, since positive cooperativity is a property of multimeric/oligomeric proteins only.
6. (a)
7. (c) Silver fish (Insecta), scorpion (Arachnida); crab (Crustacea) and honey bee (Insecta) all belong to phylum Arthropoda which is characterized by the presence of jointed appendages. Poison glands occur only in scorpion. Compound eyes and metamorphosis are the characteristic of insects.
8. (c)
9. (a) Lymph differs from blood in that it contains less protein and no red blood cells. Lymph contains white blood cells.
10. (b)
11. (c) Dolphin is an aquatic mammal and breathes through lungs.
12. (c) 13. (b) 14. (a) 15. (a) 16. (c)
17. (a) Sexual dimorphism is found in cockroach. A pair of anal style are present in male cockroach only. Female has broader abdominal segments.
18. (a) Presence of air passages in the bones (pneumatic bones) is a characteristic of birds.
19. (a) 20. (c)
21. (b) Nephridia in earthworm, malpighian tubules in cockroach and urinary tubules in the rat are excretory in function.
22. (c) 23. (a) 24. (c) 25. (b) 26. (d)
27. (d) 28. (b) 29. (c) 30. (c)
31. (c) Spiracles are 20 in number
32. (c)
33. (d) Propelling mucus is the function of simple epithelium.
34. (c) Imitability is a property only shown by cardiac muscles
35. (b) 36. (b) 37. (c)
38. (c) Myocardium is the muscular part. Pericardium and endocardium are the linings of epithelium.
39. (c) This cartilage is found in intervertebral discs.
40. (d) These granules are composed of RNA and protein.
41. (b) The GI tract is lined with simple columnar epithelium, which allows a maximum number of cells to contact food particles.
42. (a) Most epithelia have a basement membrane between the epithelial cells and the underlying connective tissue.
43. (a)
44. (b) Bone is surrounded by dense, white fibrous sheath called periosteum.
45. (b) A - Ocellus; B - Compound eye; C - Mandible; D - Maxilla; E - Labrum; F - Labium.