



NSEB 11th 2026

DPP-12

Structural Organization in Animals

1. Vision of cockroach is:
 - (A) Mosaic vision with more resolution but less sensitivity
 - (B) Mosaic vision with more resolution and sensitivity
 - (C) Mosaic vision with less resolution and sensitivity
 - (D) Mosaic vision with more sensitivity and less resolution

2. Heart of cockroach is dorsal, tubular and consists of 13 chamber. The first chamber of heart is called as:
 - (A) Anterior aorta (B) Posterior aorta
 - (C) Anterior alary (D) Posterior alary

3. Following mouth parts are present in mouth of cockroach:
 - (a) A pair of mandible (b) One labrum
 - (c) A pair of maxilla (d) One labium
 Which of above mouth part forms lower lip
 - (A) a and c (B) c and d
 - (C) c only (D) d only

4. Choose the correct statement about cockroach:
 - (a) Its exoskeleton made up of chitinous cuticle
 - (b) In each segment exoskeleton is in form of plates called sclerite
 - (c) Dorsal sclerite is turgite while ventral sclerite is sternite
 - (d) Selerites are attached together by arthroidal membrane
 - (A) a and c (B) b and d
 - (C) a, b, c and d (D) a, b and c

5. Which of the following statement is incorrect w.r.t malpighian tubules in cockroach?
 - (A) They convert nitrogenous waste products into urea which is excreted out through hind gut
 - (B) Each tubule is lined by glandular and ciliated cells
 - (C) These are 100-150 blind yellow tubules present at the junction of midgut and hind gut
 - (D) They absorb urates salt from haemolymph.

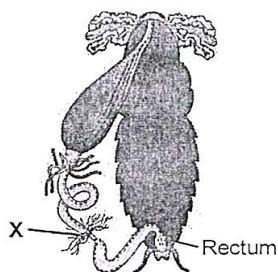
6. If the head of cockroach is cut off, it will still live for as long as one week because:
 - (A) Whole nervous system placed inside head region
 - (B) Whole nervous system situated in abdomen
 - (C) Brain represented by supraesophageal ganglion present in head region
 - (D) Very bit part of nervous system at situated in head

7. Find out the incorrect statements w.r.t head of cockroach:
 - (A) Head is formed by the fusion of six embryonic segments
 - (B) Chewing and lapping type of mouth parts are found in head
 - (C) Tentorium is the endoskeletal structure of the head
 - (D) Head is triangular and present at an angle of 90° from the long axis of the body

8. How many of the following statements are **wrong** w.r.t. Periplaneta?
 - (A) Coelom is reduced by presence of blood containing cavity called haemocoel
 - (B) Wings in male cockroach are relatively larger than female wings
 - (C) Diploid number of chromosome in female while male is haploid
 - (D) Embryologically body is made of twenty segments
 - (A) One (B) Two
 - (C) Three (D) Four



9. The nymphal stage during development of *Periplaneta americana*:
- Looks completely distinct from adult
 - Undergoes thirteen moultings to reach to adult form
 - Bear wings but cannot fly
 - Has well developed ganads and can reproduce
10. Which of the following structures are present in 4-6th and 2-6th abdominal segment only in male and female cockroach respectively?
- Utricular gland and ovary
 - Phallic gland and gonopore
 - Testes and ovary
 - Seminal vesicles and genital chamber
11. Which of the following is **mismatched** w.r.t. *Periplaneta*?
- Head** – Triangular in shape, lies at right angles to longitudinal axis of body and is formed by fusion of six segments
 - Thorax** – Consists of three segments; each segment of it bear a pair of walking legs and a pair of wings
 - Abdomen of male** – Consists of ten segments; Genital pouch or chamber lies at the hind end bounded dorsally by 9th and 10th terga and ventrally by 9th sternum.
 - Abdomen of female** – Consists of ten segments 7th sternum is boat shaped and together with 8th and 9th sterna forms a brood or genital pouch
12. Which of the following is **incorrect** w.r.t. structure /gland of cockroach and its total number in body?
- Collateral glands in female cockroach-2
 - Malpighian tubules – 100 – 150
 - Spiracles – 10
 - Ommatidia in each compound eye – 2000
13. Following is a diagram of alimentary canal of cockroach:



Which of the following is not a correct statement for the structure marked as X?

- These are structures at the junction of mid-gut and ileum
 - These help in the removal of excretory products from haemolymph
 - They are yellow coloured & 100-150 in number
 - These are thin filamentuous structure which secrete digestive juices into alimentary canal
14. Uric acid is the chief nitrogenous component of the excretory product of:-
- Frog
 - Man
 - Earthworm
 - Cockroach
15. Which of the following correctly state as it happens in the common cockroach?
- Malpighian tubules are excretory organs projecting out from the colon.
 - Oxygen is transported by haemoglobin in blood
 - Nitrogenous excretory product in urea
 - The food is grinded by mandibles and gizzard
16. Which of the following animal correctly matched to their corresponding respiratory organ?
- Earthworm – Open circulatory system with haemoglobin
 - Cockroach – Three pairs of spiracles in each throax.
 - Frog in water – skin and lungs
 - Frog on land – skin, buccal cavity, lungs
17. Which type of mouth parts are present in cockroach?
- Lapping & chewing
 - Siphoning
 - Sucking and pircing
 - Chewing and biting
18. The terga, sterna and pleura of cockroach body are joined by:
- Muscular tissue
 - Arthrodiol membrane
 - Cartilage
 - Cementing glue



19. The body cells in cockroach discharge their nitrogenous waste in the haemolymph mainly in the form of:
- Calcium carbonate
 - Ammonia
 - Postassium urate
 - Urea
20. Which of the following feature is not presenting *Periplanata americana*?
- Schizocoelom
 - Indeterminate and radial cleavage during embryonic development
 - Exoskeleton composed of N-acetylglucosamine
 - Metamerically segmented body
21. Which of the following statement is correct regarding cockroach?
- Nocturnal, omnivorous found in damp places
 - Malpighian tubules found only in forward part of hindgut
 - Head is formed by 5 parts
 - Hypopharynx and mandible are paired
22. What is true about cockroach?
- Ureotelic animal
 - Entire foregut is lined by cuticle
 - Male have spermatheca in 6th segment
 - Female have caudal style
23. Which of the following features is used to identify a male cockroach from a female cockroach?
- Presence of a boat shaped sternum on the 9th abdominal segment
 - Presence of caudal styles
 - Forewings with darker tegmina
 - Presence of anal cerci
24. Select the correct sequence of organs in the alimentary canal of cockroach starting from mouth:
- Pharynx → Oesophagus → Gizzard → Ileum → Crop → Colon → Rectum
 - Pharynx → Oesophagus → Ileum → Crop → Gizzard → Colon → Rectum
 - Pharynx → Oesophagus → Crop → Gizzard → Ileum → Colon → Rectum
 - Pharynx → Oesophagus → Gizzard → Crop → Ileum → Colon → Rectum
25. Cockroach is:
- Nocturnal and omnivorous
 - Diurnal and omnivorous
 - Nocturnal and carnivorous
 - None



Answer Key

1. (D)
2. (A)
3. (D)
4. (C)
5. (A)
6. (D)
7. (B)
8. (A)
9. (B)
10. (C)
11. (B)
12. (C)
13. (D)

14. (D)
15. (D)
16. (D)
17. (D)
18. (B)
19. (C)
20. (B)
21. (A)
22. (B)
23. (B)
24. (C)
25. (A)