



NSEB 11th 2026

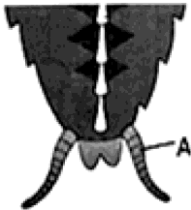
DPP-08

Structural Organization in Animals

- Statement I:** The cockroach has a segmented body divided into three distinct regions, namely the head, thorax, and abdomen.

Statement II: Each segment of the cockroach's body contains hardened plates called arthrodial membrane.

(A) Statement I and Statement II both are correct.
 (B) Statement I is correct but Statement II is incorrect.
 (C) Statement I is incorrect but Statement II is correct.
 (D) Statement I and Statement II both are incorrect.
- Which of the following is the **correct** statement of the structure labelled 'A' in the diagram?



(A) A pair of anal styles absent in females.
 (B) A pair of anal cerci, arise from 10 segment present in both the sexes.
 (C) Phallomere, external genitalia of male.
 (D) Ovipositor in female.
- Read the following statements w.r.t. *Periplaneta americana*.

(a) Entire body is covered by a hard calcareous exoskeleton.
 (b) Head is triangular and lies anteriorly at right angle to the longitudinal axis of body.
 (c) A pair of walking legs arise from each thoracic segment.
 (d) The abdomen in both male and female consists 10 segments.

How many of the given statements are **correct**?

(A) One (B) Two
 (C) Three (D) Four
- To which class and phylum does *Periplaneta* belong?

(A) Class - Insecta; Phylum - Annelida
 (B) Class - Reptilia; Phylum - Arthropoda
 (C) Class - Amphibians; Phylum - Annelida
 (D) Class - Insecta; Phylum - Arthropoda
- Which of the following features is **not** related to cockroach?

(A) Body divisible into head, thorax and abdomen.
 (B) Two pairs of wings are found.
 (C) Head lies posteriorly at right angles to the longitudinal body axis.
 (D) Presence of anal cerci in both sexes.
- Head of cockroach is formed by the fusion of;

(A) six segments and triangular in shape.
 (B) ten segments and trigonal in shape.
 (C) eleven segments and rectangular in shape.
 (D) three segments and tetragonal in shape.
- The first pair of wings in cockroach arises from _____ and the second pair from _____.

(A) prothorax, mesothorax
 (B) mesothorax, metathorax
 (C) metathorax, mesothorax
 (D) mesothorax, prothorax
- Sexual dimorphism is distinct in:

(A) *Hydra*. (B) earthworm.
 (C) cockroach. (D) sponges.
- Which of the following is characteristic feature of cockroach regarding sexual dimorphism?

(A) Presence of anal cerci
 (B) Dark brown body colour and anal cerci
 (C) Presence of anal styles
 (D) Presence of sclerites

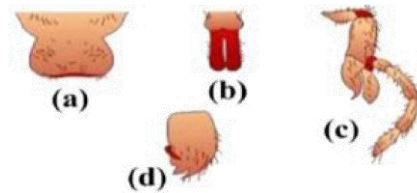


10. In female cockroach, 7th sternum together with 8th and 9th sterna forms-
- (A) A brood / genital pouch
(B) Anal cercus
(C) Anal style
(D) None
11. Choose the correct statement from the following.
- (A) The mouth parts of cockroach consist of labrum (lower lip), labium (upper lip) and mandible, maxillae only.
(B) Only prothoracic and mesothoracic segments of cockroach possess walking legs.
(C) Forewings (Prothoracic) called tegmina.
(D) Hind wings are transparent and membranous.
12. Match List-I with List-II to find out the correct option.

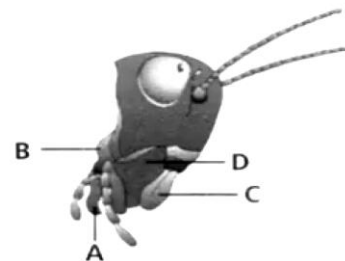
List-I		List-II	
(A)	Malpighian Tubules	(I)	Transparent, membranous, help in flight
(B)	Hepatic caecae	(II)	Present at the junction of midgut and hind gut
(C)	Tegmina	(III)	Secrete Digestive juices
(D)	Hind wings	(IV)	Opaque, dark and leathery

- (A) A-I, B-II, C-III, D-IV
(B) A-II, B-I, C-III, D-IV
(C) A-II, B-III, C-IV, D-I
(D) A-II, B-III, C-I, D-IV
13. Which of the following is incorrect for forewings of cockroach?
- (A) Also called mesothoracic wings or tegmina
(B) Opaque, dark and leathery
(C) Cover the hind wings when at rest
(D) Used in flight

14. In cockroach, labium, labrum and hypopharynx are commonly called:
- (A) upper lip, lower lip and crop, respectively.
(B) upper lip, lower lip and tongue, respectively.
(C) lower lip, upper lip and tongue, respectively.
(D) lower lip, upper lip and jaw, respectively.
15. Which one is the correct option for the given diagram?



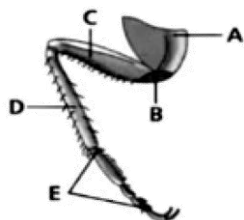
- (A) a-Labrum, b-Maxilla, c-Hypopharynx, d-Mandible
(B) a-Hypopharynx, b-Mandible, c-Maxilla, d-Labrum
(C) a-Labrum, b-Hypopharynx, c-Maxilla, d-Mandible
(D) a-Maxilla, b-Hypopharynx, c-Mandible, d-Labrum
16. The given figure represents head region of cockroach. In which one of the options all the four parts A, B, C and D are labelled correctly?



- (A) A- Labrum, B- Mandible, C- Maxilla, D- Labium
(B) A-Mandible, B- Maxilla, C- Labium, D- Labrum
(C) A- Maxilla, B- Labium, C- Mandible, D- Labrum
(D) A- Labium, B- Maxilla, C- Labrum, D- Mandible



17. In the given diagram of a leg of cockroach, parts have been indicated by alphabets. Select the answer in which these alphabets have been correctly matched with the parts which they indicate.



- (A) A - Coxa; B - Tibia; C - Tarsus; D - Femur; E - Trochanter
 (B) A - Coxa; B - Femur; C - Trochanter; D - Tarsus; E - Tibia
 (C) A - Coxa; B - Tarsus; C - Femur; D - Tibia; E - Trochanter
 (D) A - Coxa; B - Trochanter; C - Femur; D - Tibia; E - Tarsus

18. Match List I with List II related to digestive system of cockroach.

List-I		List-II	
(A)	The structures used for storing of food.	(I)	Gizzard
(B)	Ring of 6-8 blind tubules at junction of foregut and midgut.	(II)	Gastric Caeca
(C)	Ring of 100-150 yellow coloured thin filaments at junction of midgut and hindgut.	(III)	Malpighian tubules
(D)	The structures used for grinding the food.	(IV)	Crop

Choose the **correct** answer from the options given below:

- (A) A-III, B-II, C-IV, D-I
 (B) A-IV, B-II, C-III, D-I
 (C) A-I, B-II, C-III, D-IV
 (D) A-IV, B-III, C-II, D-I

19. Which of the following is **correct** w.r.t. gastric caecae of cockroach?

- (A) 6-8 blind tubules at the junction of crop and gizzard which eliminate wastes from haemolymph.
 (B) 100-150 thin yellow tubules at the junction of foregut and midgut to eliminate wastes from haemolymph.
 (C) 6-8 blind tubules at the junction of gizzard and midgut to secrete digestive enzymes.
 (D) 6-8 blind tubules at junction of midgut and ileum to secrete digestive enzymes.

20. Find the **correct** sequence of the parts of alimentary canal in cockroach.

- (A) Mouth → Pharynx → Oesophagus → Crop → Gizzard → Midgut → Caecum → Colon → Rectum → Anus
 (B) Mouth → Pharynx → Oesophagus → Gizzard → Crop → Midgut → Ileum → Colon → Rectum → Anus
 (C) Mouth → Pharynx → Oesophagus → Crop → Proventriculus → Midgut → Ileum → Colon → Rectum → Anus
 (D) Mouth → Pharynx → Oesophagus → Stomach → Crop → Midgut → Hindgut → Anus



Answer Key

- | | |
|---------|---------|
| 1. (B) | 11. (D) |
| 2. (B) | 12. (C) |
| 3. (C) | 13. (D) |
| 4. (D) | 14. (C) |
| 5. (C) | 15. (C) |
| 6. (A) | 16. (D) |
| 7. (B) | 17. (D) |
| 8. (C) | 18. (B) |
| 9. (C) | 19. (C) |
| 10. (A) | 20. (A) |

