

Questionbank Biology

Unit -II**Chapter 9. Cockroach Comparative Study****IMPORTANT POINTS**

Cockroach show characteristic features in segmentation, symmetry and body organization. Its scientific name is *Periplaneta americana*.

Morphology - Body is covered with hard chitinous exoskeleton. Size about 25 to 45 mm long cm and 8 to 12 broad found all over the world colour varies. Body is divisible into three regions. Head, thorax, abdomen. Each having segmented appendages to perform various functions.

Anatomy : (Internal structure) Body wall cockroach has three layers. Digestive system complete - hepatic caecae and malpighian tubules present figure blood vascular system. Open type - Heart has 13 units with valved ostia. Haemocoel has two types of cells. Respiratory system is made up of network of branched tracheal tubes through out the body. Terminal branches are called tracheols. Ten pairs of spiracles formed and protected by chitinous bristles. Excretory system has malpighian tubules is haemolymph. Ureotelic animal. Nervous system is made up of paired ganglia, nerve cords and nerves. Nerve-ring is present sense organs are antennae, eyes, maxillary palps, tarsus of walking legs and anal cirrus. Reproductive system unisexual male slightly bigger. Internal fertilization 14-16 eggs are fertilized in Ootheca vlymphal stage, youngones look alike parents develop into adult by under going ecdysis severl times.

- Generally Cockroach is or colored insect, however in tropical regions, they havebeen reported to be, and colored.

(A) Brown or red, Yellow, Green and White (B) Brown or Black, Yellow, Red and Green
(C) Brown or Yellow, Red, Green and White (D) Red or Yellow, Brown, Green and Black
- In case of common species of Cockroach, Morphologically which statement is correct ?

(A) The size of female is slightly bigger than male.
(B) In both male and female, numbers of abdominal segments are different.
(C) The size of male and female are equal.
(D) The size of male is slightly bigger than female.
- Exoskeleton of periplaneta is protected due to

(A) Calcium carbonate (B) Cutin (C) Chitin (D) Mucous
- Head of the Cockroach is formed by the fusion of segments.

(A) Six (B) four (C) two (D) eight
- Why head of the Cockroach can move easily in all the directions ?

(A) In Cockroach head and thorax fuse to form Cephalothorax.
(B) Anatomy of mouthpart, are so arranged that head can move easily in all the directions.
(C) Head is attached to thorax through a flexible neck.
(D) Abdomen of Cockroach is made of three segments.

Questionbank Biology

6. On the head region of Cockroach pairs of and shaped eyes occur.
(A) One pair, sessile compound and kidney shaped
(B) Two pairs, stalked compound and round shaped
(C) Many pairs, sessile simple and kidney shaped
(D) Many pairs, stalked compound and kidney shaped
7. Mouthparts of periplaneta are consist ofdifferent types of articulations.
(A) four (B) eight (C) six (D) three
8. On the lateral side of alimentary canal of cockroach glands are found.
(A) Acid secreting (B) Salivary (C) Degestive (D) Reproductive
9. Each walking leg of periplaneta is made up ofsegments.
(A) five (B) four (C) six (D) nine
10. A segment attached to the ventral side of the thorax nearer to the body of Cockroach is
(A) Trochanter (B) Femur (C) Coxa (D) Tarsus
11. Walking legs of periplaneta are attached to and divided into segments.
(A) Dorsal tergum, Five (B) Ventral sternum, Five
(C) Dorsal tergum, six (D) Ventral sternum, Six
12. Third segment of walking leg of Cockroach is.....
(A) Coxa (B) Trochanter (C) Femur (D) Tibia
13. Fiftse segment of walking leg of Cockroach is
(A) Coxa (B) Tarsus (C) Femur (D) Tibia
14. What is the name of second segment of walking leg of Cockroach ?
(A) Coxa b) Femur (C) Tarsus (D) Trochanter
15. Each abdominal segment of Ccokroach are covered with outer layers plearae.
(A) One, Two (B) Two, Two (C) Two, One (D) One, One
16. Howmany segment are present in an abdomen of the Cockroach ?
(A) Eight (B) Ten (C) Seven (D) Nine
17. In Cockroach which tergum possesses a median groove ?
(A) Tenth (B) First (C) Ninenth (D) Third
18. Which is the peculiarity of ninenth sternum of maleCockroach ?
(A) Anus occurs under it
(B) A piar of anal cerci is associated with it
(C) Seventh and Eighth sternum are covered with it
(D) Male genital openings occurs there
19. Which number of sternum is boatshaped in the Cockroach ?
(A) Fifth (B) Sixth (C) Seventh (D) Tenth
20. In Cockroach which segment has female genital opening ?
(A) Seventh (B) Ninth (C) Tenth (D) Eighth

Questionbank Biology

21. Which segment has male genital opening in Cockroach ?
(A) Ninth (B) Tenth (C) Seventh (D) Eighth
22. Which structure is sound receptor in Cockroach ?
(A) Tarsus (B) Anal cerci (C) Compound eye (D) Walking leg
23. Which segments joint to form a genital pouch in female Cockroach ?
(A) Seventh and Eighth (B) Ninth and Tenth (C) Eighth and Ninth (D) Sixth and Seventh
24. The distal segment of walking leg of a Cockroach is ?
(A) Trochanter (B) Coxa (C) Tibia (D) Tarsus
25. In which succession the three main layers of the body wall of a Cockroach from outer to Inner side are arranged ?
(A) Epidermis, Cuticle and basement membrane
(B) Cuticle, Epidermis and basement membrane
(C) Basement membrane, Cuticle and Epidermis
(D) Epidermis, Basement membrane and Cuticle
26. The Epidermis of body wall of the Cockroach is made up of..... ?
(A) Squamous epithelium (B) Ciliated epithelium
(C) Columnar epithelium (D) Cuboidal epithelium
27. In Cockroach how many structures named after malpighian are present ?
(A) One (B) Two (C) Three (D) Four
28. In Cockroach the cavities of foregut and hindgut are lined with
(A) Salivary glands (B) Gizzard (C) Cuticle (D) Chitinous teeth
29. In the alimentary canal of Cockroach the shape of region following the mouth is
(A) Folded (B) Swollen bag like (C) Narrow tubular (D) Thin fibrillar
30. How many secreting lobes are present in each salivary gland of Cockroach ?
(A) Two (B) Two pairs (C) Three (D) Six
31. In Cockroach on salivary glands and reservoirs are present ?
(A) Two, One (B) One, Two (C) Two, Four (D) Three, Two
32. Crop of the Cockroach occurs at in alimentary canal.
(A) Posterior end of oesophagus (B) Near midgut
(C) Posterior end of pharynx (D) At the junction of midgut and hindgut.
33. In which of the following regions crop of the Cockroach is located ?
(A) Thorax (B) Abdomen
(C) Thorax and abdomen (D) Through out the gut
34. In Cockroach, gizzard is organ and occur inside it.
(A) Glandular, six dentin teeth (B) Muscular, six chitinous teeth
(C) Muscular, four chitinous teeth (D) Glandular, six chitinous teeth
35. Where are sieve like structures present in the alimentary canal of Cockroach ?
(A) Anterior end of gizzard (B) In hepatic caecae
(C) Posterior end of crop (D) Posterior end of gizzard

Questionbank Biology

36. Where are eight blind hepatic caeca present in Cockroach ?
(A) With crop (B) At the junction of midgut and hindgut
(C) at the midgut (D) at the foregut.
37. Malpighian tubules in Cockroach are..... organs.
(A) Digestive (B) Secretory (C) Excretory (D) Respiratory
38. In Cockroach malpighian tubules open in
(A) At the junction of midgut and hindgut. (B) At the end of hindgut.
(C) Near rectum (D) At the posterior end of gizzard.
39. In Cockroach, morphologically rectum is..... shaped and from inside.
(A) Tubular, bag like (B) Bag like, folded (C) Folded, baglike (D) Villi, baglike
40. In Cockroach, colon is present at the posterior region of
(A) Foregut (B) Hindgut (C) Hepatic caecae (D) Gizzard
41. Cockroach is animal.
(A) Herbivorous (B) Insectivorous (C) Omnivorous (D) Carnivorous
42. Cockroach searches its food with the help of..... .
(A) Walking legs (B) Mandibles (C) Eye (D) Antennae
43. In alimentary canal of Cockroach cells of midgut and hepatic caeca secrete enzymes.
(A) Columnar (B) Cuboidal (C) Ciliated (D) Striated
44. The haemolymph of Cockroach is mostly composed of and
(A) Haemoglobin and blood cells. (B) Plasma and uncertain shaped cells.
(C) Haemocytin and plasma. (D) Plasma and certain shaped cells.
45. The heart of Cockroach is made up of units.
(A) Thirteen (B) Ten (C) Twelve (D) Four
46. Name the small cells of haemolymph of Cockroach ?
(A) Phagocytes (B) Proleucocytes (C) Encocytes (D) Excretory
47. Blood from sinuses enters in the heart of Cockroach through
(A) Artery (B) Vein (C) Arteriole (D) Ostia
48. numbers of Ostia are present at the posterior end of heart of Cockroach ?
(A) One (B) Two (C) Three (D) Ten
49. Which is the path of blood circulation in Cockroach ?
(A) Heart - artery - organs - heart (B) Heart - sinuses - heart
(C) Sinuses - artery - organs - vein - heart (D) Heart - artery - heart
50. Total how many spiracles occur in Cockroach ?
(A) Ten (B) Twenty (C) Thirteen (D) Twenty six
51. In Cockroach how many spiracles are present in thoracic region and how many spiracles are present in abdominal region ?
(A) Two pairs and eight pairs (B) Two and eight
(C) Eight pairs and two pairs (D) Eight and two

Questionbank Biology

52. The walls of spiracles are framed from
(A) Blood vessels (B) Tissue fluid (C) Chitinous Bristles (D) Ostia
53. In respiratory system of Cockroach function as filters.
(A) Spiracles (B) Chitinous bristles (C) Ostia (D) Tracheoles
54. Main excretory units in Cockroach are
(A) A pair of kidney (B) Haemolymph (C) Chitinous bristles (D) Malpighian tubules
55. Write location and numbers of malpighian tubules in periplaneta.
(A) At the junction of midgut and hindgut, about 150.
(B) At the junction of foregut and midgut, about 150.
(C) Surrounding gizzard, eight.
(D) At the junction of colon and rectum, eight.
56. In Cockroach colour of malpighian tubules is and their end is blind.
(A) Green, anterior (B) Green, posterior
(C) Yellow, anterior (D) Yellow, free (distal)
57. In Cockroach wall of each malpighian tubule is lined byandcells.
(A) Secretory and non-ciliated surface (B) Glandular and ciliated
(C) Squamous and smooth surfaced (D) Striated and ciliated
58. Which of the following is the function of malpighian tubules of Cockroach ?
(A) Absorption of waste from haemolymph and convert them into uric acid.
(B) Removes CO₂
(C) Store solid excretory material
(D) Reabsorption of water from the hindgut.
59. In Cockroach by which process malpighian tubules absorb waste from the haemocoel ?
(A) Osmosis (B) Endosmosis (C) Diffusion (D) Exosmosis
60. In Cockroach waste products collected in malpighian tubules will first enter in
(A) Gizzard (B) Hepatic caeca (C) Haemocoel (D) Hindgut
61. With reference to excretion, Cockroach is animal.
(A) Ammonotelic (B) Uricotelic
(C) Ureotelic (D) Ammonia and uricotelic
62. Out of following which ganglia unite to form nerving in nervous system of Cockroach ?
(A) Suboesophageal, supraoesophageal and circumoesophageal commissures unite to form nerving.
(B) Three ganglia in thorax region and six ganglia of abdominal region unite to form nerving.
(C) Three pairs of ganglia in thorax region and six pairs in abdominal regions.
(D) Three pairs supraoesophageal and one pair suboesophageal ganglia unite to form nerving.
63. In Cockroach ganglia innervate the mouth parts.
(A) Supraoesophageal (B) Suboesophageal
(C) Circumoesophageal (D) Three ganglia of thorax region

Questionbank Biology

64. How many ganglia are present in abdominal region of Cockroach ?
 (A) 3 pairs (B) 6 pairs (C) 4 pairs (D) 8 pairs
65. Which of the following is a group of senseorgans in Cockroach ?
 (A) Antennae, eyes, maxillary palps, anal cerci
 (B) Antennae, compound eye, maxillary palps
 (C) Antennae, ommatidia, maxillary palps, sternum
 (D) Antennae, eyes, maxillary palps, tarsus of walking legs and cerci.
66. Which is the correct word for vision of Cockroach ?
 (A) Three dimensional (B) Two dimensional
 (C) Mosaic (D) Cockroach donot have vision
67. is the accessory reproductive gland with testis in male Cockroach.
 (A) Chitinous gonapophysis (B) Ejaculatory duct
 (C) Vas deferens (D) Mushroom shaped gland
68. In male Cockroach the sperms stored in seminal vesicles form
 (A) Spermatophores (B) Zygote (C) Testis (D) Ejaculatory duct
69. In male Cockroach testes are present in segments of abdomen while mushroom glands occurs in segments.
 (A) 4 to 6, 5 to 6 (B) 4 to 6, 6 to 7
 (C) 5 to 6, 4 to 6 (D) 6 to 7, 4 to 6
70. Sperms from the spermatophores in male Cockroach are discharged during
 (A) Fertilization (B) Meiotic division (C) Copulation (D) Spermatogenesis
71. In each ovary of female Cockroach the most developed ova are placed at
 (A) Anywhere in ovarian tubules (B) At the origin of ovarian tubules
 (C) In the inner layer of ovary (D) At the distal free end of ovarian tubule
72. During copulation, in female Cockroach ovum comes in the which is present in cockroach.
 (A) Ejaculatory duct is male (B) Ovarian tubule is female
 (C) Genital chamber in female (D) Genital chamber is male
73. Fertilization occurs in Cockroach in
 (A) Ovary (B) Ovarian tubule (C) Genital chamber (D) Ootheca
74. Cockroach is a animal and development is
 (A) Viviparous, direct (B) Oviparous, direct
 (C) Oviparous, indirect (D) Ovoviviparous, direct
75. Ootheca of Cockroach has eggs which are
 (A) 14 to 16, fertilized (B) 12 to 14, fertilized
 (C) 14 to 16 unfertilized (D) 12 to 14 unfertilized
76. The nymph of Cockroach grows into an adult Cockroach by moulting times.
 (A) 10 to 12 (B) 6 to 7 (C) 8 to 10 (D) 14 to 16

Questionbank Biology

77. Howmany abdominal segments are present in male and female Cockroach ? (Kerala PMT 2008)
 (A) 10, 10 (B) 9, 10 (C) 8, 10 (D) 9, 9
78. Excretory matter of Cockroach is mainly (UP, PMT 2009)
 (A) Uric acid (B) Urea (C) Ammonia (D) Amino acid
79. Which animal secrete uric acid ? (AIPMT 2009)
 (A) Frog (B) Man (C) Earthworm (D) Cockroach
80. Which statement is true for Cockroach ? (NCERT)
 (A) Ten ovarioles in ovary (B) Nymph is caterpillar form
 (C) Anal cerci are absent in female animal (D) It is ureotelic animal
81. Which is the correct option is case of Cockroach in following column A and B ?
- | A | B |
|---------------------------------|---------------------------------|
| (P) Mouth parts of Cockroach | (i) Anal cerci |
| (Q) Segments of walking leg | (ii) Malpighian tubule |
| (R) Sound receptor structure | (iii) Mandibles, maxillae |
| (S) Excretory unit | (iv) Coxa, trochanter |
| (A) P, Q, R, S = i, ii, iii, iv | (B) P, Q, R, S = iii, iv, ii, i |
| (C) P, Q, R, S = iii, iv, i, ii | (D) P, Q, R, S = iv, iii, i, ii |
82. Select the correct option from following columns is case of Cockroach ?
- | | |
|----------------------------------|---------------------------------|
| (p) Gizzard | (i) Sound receptor |
| (q) Rectum | (ii) Chitin |
| (r) Anal cerci | (iii) Cuticle |
| (s) Foregut and midgut | (iv) 10th tergum |
| (A) p, q, r, s, = i, iii, ii, iv | (B) p, q, r, s = ii, iv, i, iii |
| (C) p, q, r, s = i, iv, iii, ii | (D) p, q, r, s = i, ii, iii, iv |
- * Answer following questions by selecting correct S and R from given options.
 S - Statement, R - Reason
 Option for Question number 83 to 90
- (A) S - correct, R - Incorrect, R is explanation of S.
 (B) Both S and R correct but R is not a explanation of S.
 (C) S - correct, R - incorrect
 (D) S-incorrect, R - correct
83. S : Ootheca is formed in female Cockroach by the group of fertile eggs.
 R : Nymph of Cockroach grows with adult by undergoing moulting process several times.
84. S : Each eye of Cockroach consist of 2000 ommatidia.
 R : Vision of Cockroach is known as mosaic vision.
85. S : In Cockroach nine pairs of spiracles occur.
 R : Walls of spiracles are framed from chitinous bristles.

Questionbank Biology

86. S : Head of the Cockroach is attached to the thorax through a flexible neck.

R : Head of the Cockroach cannot move easily in all the directions.

87. S : Cockroach is nocturnal and omnivorous.

R : Species of Cockroach are found all over the world.

88. S : Heart of Cockroach is made up of thirteen units.

R : Blood vascular system of Cockroach is an open type.

89. S : In cockroach gizzard has hard chitinous teeth.

R : Mouth of Cockroach cannot cut down the food into small pieces.

90. In following diagram label a and b parts successively.

(A) Coxa, tarsus (B) Trochanter, coxa. (C) Tarsus, coxa. (D) tibia, coxa.



ANSWER KEY

- | | | | |
|---------|---------|---------|---------|
| 1. (B) | 2. (D) | 3. (C) | 4. (A) |
| 5. (C) | 6. (A) | 7. (C) | 8. (B) |
| 9. (A) | 10. (C) | 11. (B) | 12. (C) |
| 13. (B) | 14. (D) | 15. (C) | 16. (B) |
| 17. (A) | 18. (B) | 19. (C) | 20. (D) |
| 21. (A) | 22. (B) | 23. (C) | 24. (D) |
| 25. (B) | 26. (C) | 27. (B) | 28. (C) |
| 29. (C) | 30. (A) | 31. (C) | 32. (A) |
| 33. (C) | 34. (B) | 35. (D) | 36. (C) |
| 37. (C) | 38. (A) | 39. (B) | 40. (B) |
| 41. (C) | 42. (D) | 43. (A) | 44. (B) |
| 45. (A) | 46. (B) | 47. (D) | 48. (B) |
| 49. (B) | 50. (B) | 51. (A) | 52. (C) |
| 53. (B) | 54. (D) | 55. (A) | 56. (D) |
| 57. (B) | 58. (A) | 59. (C) | 60. (D) |
| 61. (B) | 62. (A) | 63. (B) | 64. (B) |
| 65. (D) | 66. (C) | 67. (D) | 68. (A) |
| 69. (B) | 70. (C) | 71. (D) | 72. (C) |
| 73. (C) | 74. (C) | 75. (A) | 76. (B) |
| 77. (A) | 78. (A) | 79. (D) | 80. (C) |
| 81. (C) | 82. (B) | 83. (B) | 84. (A) |
| 85. (D) | 86. (C) | 87. (B) | 88. (B) |
| 89. (B) | 90. (C) | | |