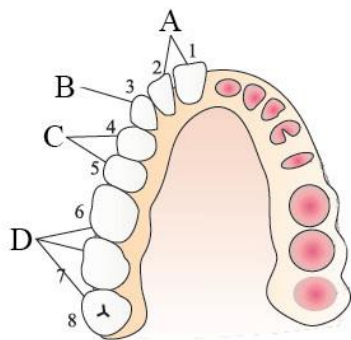


## ZOOLOGY

## Section - A

1. Sub-maxillary/ Sub- mandible is located in\_\_\_\_\_.
- Check
  - Lower jaw
  - Below the tongue
  - None of the above

2. Identify A, B, C, D from the given figure, and what is the dental formula for human?



- A- incisors, B- canine, C- premolars, D- molars DF- 2123/2123
  - A- molars, B- pre-molars, C- canine, D- incisors DF- 2123/2123
  - A- canine, B- premolars, C- molars, D- incisors DF- 2123/2123
  - A- incisors, B- molars, C- premolars, D- canine DF- 2123/2123
3. The head of cockroach is formed by:
- Fusion of 6 segments
  - Fusion of 3 segments
  - Fusion of 5 segments
  - Fusion of 10 segments

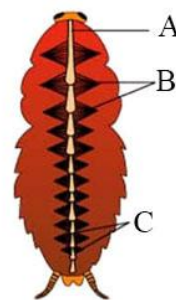
4. Exoskeleton of cockroach has hardened plates called A, dorsally it is B and ventrally it is C. identify A, B, C

- Tergites (A), Sternites (B), Sclerites (C)
- Sternites (A), tergites (B), Sclerites (C)
- sclerites (A), tergites (B), Sternites (C)
- Tergites (A), Sclerites (B), Sternites(C)

5. \_\_\_\_\_ is a small blind sac which hosts some symbiotic mico-organisms.

- Colon
- Rectum
- Caecum
- Crypts

6. Identify A, B, and C from the following figure.



- A- Anterior aorta, B- Alary muscles, C- chambers of heart
- A- posterior aorta, B- Alary muscles, C- chambers of heart
- A- posterior aorta, B- Alary muscles, C- anterior aorta
- A- Anterior aorta, B- posterior aorta, C- chambers of heart

7. The bile secreted by A, and stored in B. identify A and B.

- A- Hepatic ducts, B- gall bladder
- A- hepatic cells, B- gall bladder
- A- glisson's capsule, B- gall bladder
- A- pancreatic duct, B- gall bladder

8. Match the column I with column II

Column I		Column II	
A.	Tooth embeded in a socket of jaw	I.	Diphyodont
B.	Two sets of teeth during life time	II.	Thecodont
C.	Four types of teeth	III.	Heterodont

- A-III, B-II, C-I
- A-I, B-II, C-III
- A-II, B-III, C-I
- A-II, B-I, C-III

9. Which of the following play an important role in protection of mucosal epithelium by excoriation by HCl?
- (1) Acidic pH , gastric juice
  - (2) bicarbonates , mucus
  - (3) mucus, gastric juice
  - (4) bicarbonates, gastric juice

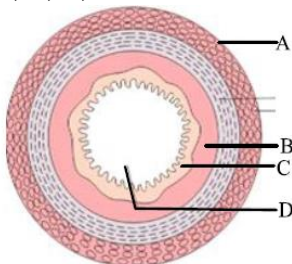
10. In the wall of the alimentary canal the outermost layer(A) is made up of mesothelium, B layer is formed by loose connective tissue. Identify A and B.

- (1) A- serosa, B- sub-mucosa
- (2) A- sub-mucosa, B- serosa
- (3) A-serosa, B – muscularis
- (4) A- mucosa, B- sub-mucosa

11. A is the structural and functional unit of liver containing B, arranged in the form of C. Identify A, B, and C.

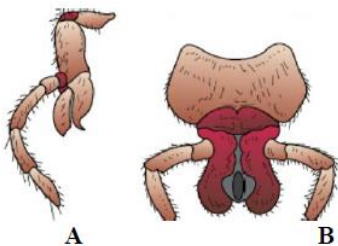
- (1) A- hepatic cells, B- Hepatic lobules, C- rogue
- (2) A- hepatic lobules, B- Hepatic cells, C- cords
- (3) A- hepatic cells, B- Hepatic lobules, C- chords
- (4) A- glisson's capsule, B- Hepatic lobules, C- chords

12. Identify A, B, C, and D



- (1) A- mucosa, B- Serosa, C – Muscularis, D- lumen
- (2) A- sub mucosa, B- serosa, C- lumen, D – mucosa
- (3) A- mucosa, B- lumen, C- serosa, D- sub-mucosa
- (4) A- serosa, B- sub-mucosa, C- mucosa, D- lumen

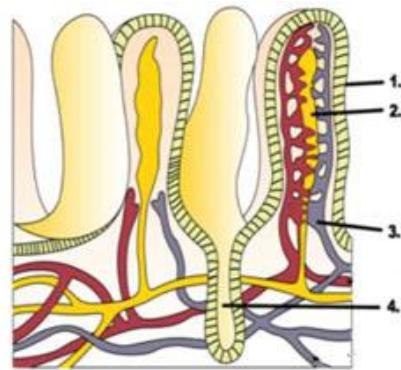
13. Identify the figure A and B,



- (1) A- maxilla, B-labium
- (2) A-labium, B- maxilla
- (3) A- mandible, B-maxilla
- (4) A-labium, B- mandible

14. The first pair of wings in cockroach arises from
- (1) Mesothorax      (2) Metathorax
  - (3) Prothorax      (4) All of the above

15. Identify 1, 2, 3, and 4 in the given figure.



- (1) 1- lacteal, 2- capillaries, 3- crypts, 4- villi
- (2) 1-villi, 2- lacteal, 3- capillaries, 4- crypts
- (3) 1- crypts, 2- lacteal, 3- capillaries, 4-villi
- (4) 1-villi, 2- lacteal, 3- crypts, 4- capillaries

16. Common passage for food and wind pipe is:

- (1) Trachea      (2) Larynx
- (3) Pharynx      (4) Oesophagus

17. Intrinsic factor is important for\_\_\_\_\_

- (1) Absorption of vitamin B<sub>10</sub>
- (2) Absorption of vitamin B<sub>2</sub>
- (3) Absorption of vitamin B<sub>12</sub>
- (4) Both 2 and 3

18. A. Starch is digested with the help of\_\_\_\_\_

B. Fats are broken down by\_\_\_\_\_

C. Proteins are digested by \_\_\_\_\_

- (1) A- amylase, B- Lipase, C- trypsin
- (2) A- lipase, B- amylase, C- trypsin
- (3) A- lipase, B- maltase, C- pepsin
- (4) A- maltase, B- Lipase, C- trypsin

19. \_\_\_\_\_ cell secrete HCl.

- (1) Mucus neck cell    (2) Peptic cell
- (3) Chief cell          (4) Oxyntic cell

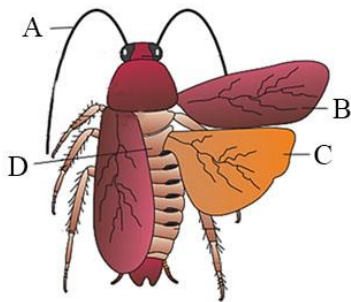
20. Identify the part from the given figure

A- that help in monitoring environment

B- dark leathery part that covers the hind wings

C- used in flight

D- a part of thorax



- (1) A- antennae, B- Tegmina, C- hindwings, D- metathorax
- (2) A- tegmina, B- metathorax, C- antennae, D- hindwings
- (3) A- antennae, B- hindwings, C- tegmina, D- metathorax
- (4) A- tegmina, B- antennae, C- hindwings, D- metathorax

**21.** The abdomen of both male and female cockroaches consists of \_\_\_\_\_ segments.

- (1) 20
- (2) 5
- (3) 17
- (4) 10

**22.** Which of the following is/are incorrect?

- a. The 10<sup>th</sup> segment of both male and female cockroach bear a pair of jointed filamentous structures called anal styles
- b. Male and female both cockroaches bear anal cerci
- c. Only male cockroach bear anal cerci

- (1) a, b
- (2) a, b, c
- (3) a, c
- (4) b, c

**23.** Colon is divided into \_\_\_ parts.

- (1) 3
- (2) 2
- (3) 4
- (4) 5

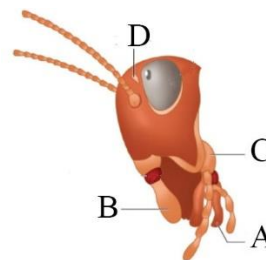
**24.** Gastric glands are formed by which layer of the alimentary canal?

- (1) Serosa
- (2) Mucosa
- (3) Sub-mucosa
- (4) Muscularis

**25.** The exocrine portion of pancreas secretes \_\_\_\_\_.

- (1) Insulin
- (2) Glucagon
- (3) Pancreatic juice
- (4) All of the above

**26.** Identify the following parts from the given figure. A, B, C, D



- (1) A- Labium, B- Labrum, C- Maxilla, D- Ocellus
- (2) A- Labrum, B- Labium, C- Mandible, D- Compound eye
- (3) A- Labium, B- Labrum, C- Mandible, D- Ocellus
- (4) A- Labrum, B- Labium, C- Maxilla, D- Compound eye

**27.** Excretion in cockroaches is performed by:

- (1) Malpighian glands
- (2) Malpighian tubules
- (3) Protonephridia
- (4) Nephridia

**28.** Which portion of stomach opens into small intestine?

- (1) Cardiac portion
- (2) Fundic portion
- (3) Pyloric portion
- (4) Both 2 and 3

**29.** The duct of gall bladder is \_\_\_\_\_

- (1) Hepatic duct
- (2) Common bile duct
- (3) Cystic duct
- (4) Hepato-pancreatic duct

**30.** Gastric glands has \_\_\_\_\_ types of cells.

- (1) 5
- (2) 4
- (3) 2
- (4) 3

**31.** What would be the optimum pH for starch hydrolysis in the oral cavity?

- (1) 3.8
- (2) 4.8
- (3) 6.8
- (4) 2.4

**32.** Second pair of wings in cockroach arises from \_\_\_\_\_.

- (1) Metathorax
- (2) mesothorax
- (3) Prothorax
- (4) None of the above

33. Wings used for the flight purpose in cockroach is \_\_\_\_\_.  
 (1) Forewing (2) Hindwing  
 (3) Tegmina (4) Both 1 and 3
34. In male cockroaches genital pouch lies at the hind end of abdomen bounded ventrally by \_\_\_\_\_.  
 (1) 10th terga  
 (2) 9th sternum  
 (3) 9th and 10th terga  
 (4) 9th and 10th sternum
35. Vermiform appendix arises from:  
 (1) Colon  
 (2) Caecum  
 (3) Rectum  
 (4) Anus

### Section - B

36. The hard chewing part of teeth is made up of:  
 (1) Enamel  
 (2) Papillae  
 (3) Mucosa layer  
 (4) Dentin
37. Which of the following is correct?  
 (1) Labium acts as tongue of cockroach  
 (2) A pair of thread like antennae present only in the male cockroach  
 (3) Hindwings of cockroach are used in flight  
 (4) Mesothorax represents the neck of cockroach
38. Oesophagus opens in \_\_\_\_\_.  
 (1) Cardiac region (2) Fundic region  
 (3) Pyloric region (4) None of the above
39. Mucosa forms \_\_\_\_\_A\_\_\_\_\_ in stomach, and \_\_\_\_\_B\_\_\_\_\_ in intestine.  
 (1) Muscular rugae(A), sphincters (B)  
 (2) Gastric gland(A), sphincters (B)  
 (3) rugae(A), crypts of Lieberkühn (B)  
 (4) gastric gland(A), crypts of Lieberkühn (B)
40. A ring of \_\_\_\_ blind tubules called hepatic caeca in cockroach.  
 (1) 10-20 (2) 3-4  
 (3) 150-200 (4) 6-8

41. Which of the following is/are correct?  
 (1) Lacteals help in the absorption of fatty acids  
 (2) Pancreas is situated in between the ileum and duodenum  
 (3) Hepatopancreatic duct is guarded by a tube like canal  
 (4) All of the above
42. In cockroach, at the junction of midgut and hindgut rings of \_\_\_\_A\_\_\_\_ yellow colour thin filamentous \_\_\_\_\_B\_\_\_\_\_, that help in the removal of excretory waste.  
 (1) A- 160-200, B- gizzard  
 (2) A- 100-150, B- malpighian tubules  
 (3) A- 160-200, B- crop  
 (4) A- 200-400, B- malpighian tubules

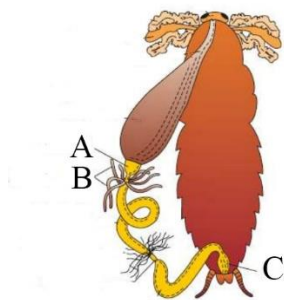
43. State whether following statements are correct/incorrect  
**Statement 1-** both male and female cockroaches have 10 segments in abdomen  
**Statement 2-** the mouth of cockroach opens into short tubular larynx  
 (1) Both statements are correct  
 (2) Both statements are incorrect  
 (3) Only statement 1 is correct  
 (4) Only statement 2 is correct
44. Which of the following statement is incorrect?  
 (1) The chyme is conveyed into oesophagus by deglutition  
 (2) Saliva contains electrolytes such as  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{HCO}_3^-$   
 (3) Bile helps in emulsification of fat  
 (4) None of the above

45. Match the column I with column II

Column I		Column II	
I	Sphincter of oddi	A	Chylomicrons
II	Chief cell	B	Intestinal juice
III	Succus entericus	C	Common hepatopancreatic duct
IV	Lacteals	D	Pepsinogen

- (1) A-II, B-III, C-IV, D-I  
 (2) A-III, B-IV, C-II, D-I  
 (3) A-III, B-IV, C-I, D-II  
 (4) A-IV, B-III, C-II, D-I

46. Which of the following is/are an excretory system in insects?
- (1) Urecoase gland
  - (2) Nephrocytes
  - (3) Fat body
  - (4) All of the above
47. Which of the following is incorrect statement regarding cockroach?
- a. The midgut of cockroaches is wider than hindgut
  - b. Heart of cockroach consists of elongated muscular tube lying in the 4<sup>th</sup> segment of abdomen
  - c. The network of trachea open through 10 small holes called spiracles
- (1) a, b                      (2) b, c
  - (3) only a                  (4) a, b, c
48. Identify following parts from the given fig.



- A- helps in grinding the food particle  
 B- secretes digestive juice  
 C- this part opens through anus
- (1) A- Gizzard, B- Hepatic caeca, C- Rectum
  - (2) A- Gizzard, B- Crop, C- Malpighian tubule
  - (3) A- Crop, B- Gizzard, C- Rectum
  - (4) A- Gizzard, B- Hepatic caeca, C- Malpighian tubule

49. The compound eye of cockroach situated \_\_\_\_\_.
- (1) Ventral surface of head
  - (2) Ventral surface of abdomen
  - (3) Dorsal surface of head
  - (4) Dorsal surface of abdomen
50. Salivary gland in the cheek region is known as
- (1) Sub-maxillary gland
  - (2) Sub-mandibular gland
  - (3) Sub-lingual gland
  - (4) Parotid gland

# ANSWER KEY

1. (2)
2. (1)
3. (1)
4. (3)
5. (3)
6. (1)
7. (2)
8. (4)
9. (2)
10. (1)
11. (2)
12. (4)
13. (1)
14. (1)
15. (2)
16. (3)
17. (3)
18. (1)
19. (4)
20. (1)
21. (4)
22. (3)
23. (3)
24. (2)
25. (3)
26. (1)

27. (2)
28. (3)
29. (3)
30. (4)
31. (3)
32. (1)
33. (2)
34. (2)
35. (2)
36. (1)
37. (3)
38. (1)
39. (4)
40. (4)
41. (1)
42. (2)
43. (3)
44. (1)
45. (2)
46. (4)
47. (4)
48. (1)
49. (3)
50. (4)

### Hints and Solution

- |   |  |
|---|--|
| <p><b>1. (2)</b><br/>Hint – saliva is mainly produced by 3 pairs of salivary glands, i. parotids (cheek), ii. Submaxillary/submandibular (lower jaw), sublingual (tongue).</p> <p><b>2. (1)</b><br/>Hint – fig. 16.2 NCERT</p> <p><b>3. (1)</b><br/>Hint - the head of cockroach is formed by the fusion of 6 segments.</p> <p><b>4. (3)</b><br/>Hint – exoskeleton of cockroach has hardened plate called sclerites, ( dorsally – tergites, ventrally – sternites)</p> <p><b>5. (3)</b><br/>Hint – caecum is a small blind sac which hosts some symbiotic micro-organisms.</p> <p><b>6. (1)</b><br/>Hint – fig. 7.17, NCERT</p> <p><b>7. (2)</b><br/>Hint – the bile is secreted by hepatic cells, and stored in gall bladder.</p> <p><b>8. (4)</b></p> <p><b>9. (2)</b><br/>Hint – bicarbonates and mucus play an important role in lubrication and protection of mucosal epithelium by excoriation of HCl.</p> <p><b>10. (1)</b><br/>Hint- the wall of the alimentary canal possesses 4 layers, outermost serosa which is made up of mesothelium, muscularis is formed by smooth muscle, sub-mucosa is formed by loose-connective tissue, innermost layer lining the lumen is mucosa.</p> <p><b>11. (2)</b><br/>Hint – hepatic lobules are the structural and functional unit of liver, containing hepatic cells, that is arranged in the form of cords.</p> <p><b>12. (4)</b><br/>NCERT fig. 16.4</p> <p><b>13. (1)</b><br/>NCERT fig. 7.15</p> | <p><b>14. (1)</b><br/>The first pair of wings in cockroach arises from mesothorax.</p> <p><b>15. (2)</b><br/>NCERT, fig. 16.5</p> <p><b>16. (3)</b><br/>Common passage for food and wind pipe is pharynx.</p> <p><b>17. (3)</b><br/>Hint – intrinsic factor is important for the absorption of vitamin B12</p> <p><b>18. (1)</b></p> <p><b>19. (4)</b><br/>Hint – mucus neck cell secretes mucus, peptic/chief cell- pepsinogen, oxyntic/parietal cell- HCl.</p> <p><b>20. (1)</b><br/>Hint – fig. 7.14 , NCERT</p> <p><b>21. (4)</b><br/>Hint - The abdomen of both male and female cockroaches consists of 10 segments.</p> <p><b>22. (3)</b><br/>Hint - The 10<sup>th</sup> segment of both male and female cockroaches bear a pair of jointed filamentous structures called anal cerci.<br/>Both female and male cockroaches bear anal cerci</p> <p><b>23. (3)</b><br/>Hint- colon is divided into 4 parts.</p> <p><b>24. (2)</b><br/>Hint - Gastric glands are formed by the mucosa layer of alimentary canal.</p> <p><b>25. (3)</b><br/>Hint - The exocrine portion of pancreas secretes pancreatic juice.</p> <p><b>26. (1)</b><br/>Hint- fig. 7.15 NCERT</p> <p><b>27. (2)</b><br/>Hint - Excretion in cockroach is performed by Malpighian tubules.</p> |
|---|--|

28. (3)  
Hint- Pyloric portion of stomach opens into small intestine.
29. (3)  
Hint- The duct of gall bladder is cystic duct.
30. (4)  
Hint- gastric gland has 3 main types of cells namely; mucus neck cell, peptic cell, parietal cell.
31. (3)  
Hint- the optimum pH for starch hydrolysis in the oral cavity would be 6.8.
32. (1)  
Hint - the second pair of wings in cockroach arises from metathorax.
33. (2)  
Hint - wings used for the flight purpose in cockroach is Hindwing.
34. (2)  
Hint- In male cockroaches genital pouch lies at the hind end of abdomen bounded ventrally by 9th sternum.
35. (2)

#### Section - B

36. (1)
37. (3)  
Hint – labium is upper lip.  
A pair of thread like antennae present in both male and female cockroaches  
Prothorax represents the neck of cockroach
38. (1)  
Hint – oesophagus opens in cardiac region.
39. (4)  
Hint – Mucosa forms gastric glands in stomach and crypts of Lieberkühn in between the base of villi in the intestine.

40. (4)
41. (1)  
Hint – lacteals help in the absorption of fatty acids.
42. (2)  
Hint – in cockroach at the junction of midgut and hindgut rings of 100-150 yellow colour thin filamentous malpighian tubules, that help on the removal of excretory waste.
43. (3)  
Hint - both male and female cockroaches have 10 segments in abdomen.  
the mouth of cockroach opens into short tubular pharynx.
44. (1)  
The bolus is conveyed into oesophagus by deglutition
45. (2)
46. (4)
47. (4)  
Hint - The hindgut of cockroaches is wider than midgut  
Heart of cockroach consists of elongated muscular tube lying along mid dorsal line of thorax and abdomen The network of trachea open through 10 pairs of small holes called spiracles
48. (1)  
Hint – fig. 7.16 NCERT
49. (3)  
Hint - The compound eye of cockroach situated at the dorsal surface of head.
50. (4)  
Hint - Salivary gland in the cheek region is known as Parotid gland.