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**SCIENCE ( Theory ) — Paper II**  
**( Botany and Zoology )**

Time Allowed : 2½ Hours ]

[ Maximum Marks : 100

**PART - I**

**( BOTANY )**

( Marks : 50 )

**SECTION - A**

- I. A) Choose the correct answers : 5 × 1 = 5
1. The vascular bundle of the dicot stem is said to be open because of the presence of
 

a) Phloem	b) Xylem
c) Cambium	d) Pith.
  2. .... cannot pass through the plasma membrane.
 

a) Proteins	b) Amino acids
c) Water	d) Oxygen.
  3. During fermentation yeast converts sugar into ..... and carbon dioxide.
 

a) lactic acid	b) vinegar
c) alcohol	d) water.
  4. Fungi and bacteria form the ..... in a food chain.
 

a) producer	b) consumer
c) decomposer	d) herbivore.
  5. Clove oil is used to relieve
 

a) toothache	b) headache
c) malaria	d) indigestion.

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B) Match the following :

5 × 1 = 5

- |              |                       |
|--------------|-----------------------|
| 1. Root cap  | a) Storage of Water   |
| 2. Nucleus   | b) Racemose branching |
| 3. Casuarina | c) Heredity           |
| 4. Opuntia   | d) Protection         |
| 5. Cardamom  | e) Cymose branching   |
|              | f) Flatulence         |
|              | g) Absorption.        |

### SECTION - B

II. Answer any *ten* of the following :

10 × 2 = 20

- A) Differentiate between the following pairs ( any *two* points only ) :
1. Exarch xylem and endarch xylem.
  2. Aerobic respiration and anaerobic respiration.
  3. Biodegradable wastes and non-biodegradable wastes.
- B) Give reasons for the following :
4. The epidermis of a leaf is covered by a cuticle.
  5. Very low temperatures affect the rate of respiration.
  6. Frequent use of headphones or the walkman must be avoided.
- C) Give any *two* practical applications of the following :
7. Osmosis.
  8. Endoplasmic reticulum.
  9. Ocimum.
- D) Answer the following briefly :
10. Define Sericulture.
  11. Mention the types of transpiration.
  12. What is photoperiodism ?

### SECTION - C

III. Answer any *four* of the following :

4 × 5 = 20

13. Draw an experimental set-up to show osmosis.
14. Draw a neat labelled diagram of the ultrastructure of a plant cell.
15. Describe the structure and functions of mitochondria.
16. Explain the mechanism of opening and closing of stomata.
17. Show by an experiment that  $\text{CO}_2$  is necessary for photosynthesis.
18. Give an account of the causes and effects of noise pollution.
19. Write a note on prawn culture.

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**PART - II**

**( ZOOLOGY )**

( Marks : 50 )

**SECTION - A**

I. A) Choose the correct answers :

5 × 1 = 5

1. The spiral valve is present in the ..... of frog.
  - a) Sinus Venosus
  - b) Truncus arteriosus
  - c) Right auricle
  - d) Left auricle.
2. The coloured part of the eye is
  - a) Retina
  - b) Iris
  - c) Rods
  - d) Cones.
3. Relaxin is produced by
  - a) Ovary
  - b) Testis
  - c) Adrenals
  - d) Pituitary.
4. Keratomalacia is caused due to the deficiency of
  - a) Vitamin D
  - b) Vitamin C
  - c) Vitamin K
  - d) Vitamin A.
5. What is formed only during sexual reproduction ?
  - a) Bud
  - b) Gemmule
  - c) Zygote
  - d) Spore.

B) Match the following :

5 × 1 = 5

1. Blood of Cockroach
  2. Malpighian capsule
  3. Semicircular canals
  4. Vitamin E
  5. AIDS
- a) Balance
  - b) Hearing
  - c) Haemocoel
  - d) Ultrafiltration
  - e) Anti-sterility
  - f) Haemolymph
  - g) Night sweat.

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## SECTION - B

II. Answer any *ten* of the following :

10 × 2 = 20

A) Differentiate between the following pairs ( any *two* points only ) :

1. Forewings and Hindwings of Cockroach.
2. Inspired and Expired air.
3. Sexual reproduction and Asexual reproduction.

B) Give reasons for the following :

4. Respiration in cockroach is said to be more efficient than any other animal.
5. Iodised salt must be used in cooking.
6. Sunlight is good for health.

C) Give the importance of the following ( any *two* points only ) :

7. Vitamin K.
8. Lymph.
9. Vaccination.

D) Answer the following briefly :

10. What is frog spawn ?
11. Mention the role of a pacemaker.
12. Name the diseases against which triple antigen is administered.

## SECTION - C

III. Answer any *four* of the following :

4 × 5 = 20

13. Draw a neat labelled diagram of the male reproductive system of frog.
  14. Draw the longitudinal section of a human kidney and mark the parts.
  15. Explain the mechanism of breathing in man.
  16. Describe the nervous system of Cockroach.
  17. Discuss the structure, hormones secreted, action, deficiency and hypersecretion of Thyroid gland.
  18. Bring out the importance of Vitamin B complex and Vitamin C.
  19. Describe the structure and functions of the cerebrum.
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