



**BIOLOGY**

**Class 12 - Biology**

**Time Allowed: 3 hours**

**Maximum Marks: 70**

**General Instructions:**

The question paper is divided into **four sections**:

**1. Section A**

- Q. No. 1 contains **Ten multiple choice type** of questions carrying **One mark** each.
- Q. No. 2 contains **Eight very short answer type** of questions carrying **One mark** each.

**2. Section B**

- Q. No. 3 to Q. No. 14 contain **Twelve short answer type** of questions carrying **Two marks** each. (Attempt any Eight).

**3. Section C**

- Q. No. 15 to Q. No. 26 contain **Twelve short answer type** of questions carrying **Three marks** each. (Attempt any Eight).

**4. Section D**

- Q. No. 27 to Q. No. 31 contain **Five long answer type** of questions carrying **Four marks** each. (Attempt any Three).

5. Figures to the right indicate full marks.

6. For each MCQ, correct answer must be written along with its alphabet. e.g., (a).... / (b) ...../ (c)..... / (d)..... Only first attempt will be considered for evaluation.

**Section A**

1. **Select and write the correct answer:** **[10]**
- (a) The most common types of fossils are \_\_\_\_\_ . **[1]**
- |                   |           |
|-------------------|-----------|
| a) actual remains | b) moulds |
| c) casts          | d) models |
- (b) Bakane disease in Rice is associated with the discovery of \_\_\_\_\_ . **[1]**
- |                 |             |
|-----------------|-------------|
| a) Cytokinins   | b) Ethylene |
| c) Gibberellins | d) Auxins   |
- (c) **Cry** genes are present in \_\_\_\_\_ . **[1]**
- |                           |                              |
|---------------------------|------------------------------|
| a) Bacillus thuringiensis | b) Agrobacterium tumefaciens |
|---------------------------|------------------------------|



## Section B

### Attempt any 8 questions

3. **Answer the following:** [2]
- (a) A pea plant pure for yellow seed colour is crossed with a pea plant pure for green seed colour. In  $F_1$  generation, all pea plants were with yellow seed. Which law of Mendel is applicable? [1]
- (b) Define the term **recessive**. [1]
4. i. Define - Palaeontology. [2]  
ii. Give any four points of significance of palaeontology.
5. Sketch and label T.S. of vein. [2]
6. Enlist the applications of tissue culture. [2]
7. i. What is a connecting link? [2]  
ii. Which fossil animal is considered as the connecting link between reptiles and birds? Give any one character of each class found in it.
8. **Answer the following:** [2]
- (a) Define pollution. [1]  
(b) Which greenhouse gas is mainly responsible for global warming? [1]
9. Give the types of blood proteins and human hormones produced by recombinant DNA technique. [2]
10. Explain the qualitative and quantitative aspects of growth phenomenon. [2]
11. Define Green House Gases. Give any two examples. [2]
12. Sketch and label V.S. of pituitary gland. [2]
13. What are the limitations of root pressure theory? [2]
14. Draw a neat labelled diagram of the hairpin model of t-RNA. [2]

## Section C

### Attempt any 8 questions

15. Enlist the characteristics of Neanderthal Man. [3]
16. **Answer the following:** [3]
- (a) Explain following term: Polyembryony [1]  
(b) Sketch and label the V.S. of anatropous ovule and answer the following questions: [2]  
i. How many mitotic divisions are required to produce embryo sac?  
ii. Which part of ovule is converted into seed coat?  
iii. Which part provides the passage for entry of pollen tube during fertilization?
17. i. Give reason - Water acts as thermal buffer. [3]  
ii. Draw a neat and proportionate diagram of root hair and label mitochondria, nucleus and vacuole.
18. Describe the antigen-antibody complex. [3]
19. **Answer the following:** [3]
- (a) Explain the term Emigration. [1]  
(b) i. Define - Adaptation. [2]  
ii. Explain any two adaptations in Opuntia and Seal.
20. Explain micropropagation. [3]
21. Name the stress hormone in plants. Describe its physiological effects. [3]
22. A pea plant homozygous for yellow round seed is crossed with its recessive parents. Calculate the phenotypic [3]

and genotypic ratio with the help of checker board.

23. State the names of hormone and glands secreting them: [3]
- Growth of thyroid gland.
  - Controls tubular absorption of water in kidney.
  - Stimulates liver and muscles for glycogenesis.
  - Development of immune system and maturation of T-lymphocyte.

24. **Answer the following:** [3]

- Which is the process that removes introns from RNA? [1]
- The process of transcription takes place on a part of DNA molecule known as transcription unit. Draw a well labelled diagram of the same showing different regions of the unit. [2]

25. With the help of a suitable diagram, describe the conducting system of human heart. [3]

26. Describe the structure of human sperm. [3]

### Section D

Attempt any 3 questions

27. **Answer the following:** [4]

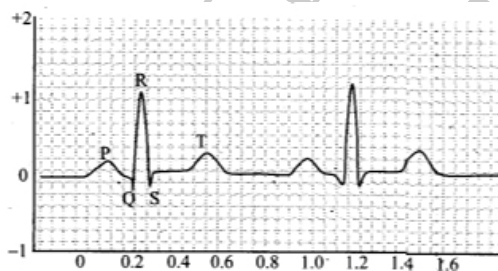
- Give the name of endocrine gland which is prominent at birth but gets gradually atrophied in adult stage. [1]
- Give the role/function of hormones released by neurohypophysis. [2]
- Name the region of retina where rods and cones are absent. [1]

28. i. Give any four significances of fertilization in human. [4]

ii. Mention the names of any two organs each derived from ectoderm and mesoderm.

29. **Answer the following:** [4]

- Dilip and Mohsin measured their blood pressure, Dilip's B.P. is 120/80 mmHg and Mohsin's B.P. is 160/100 mmHg. Who is suffering from hypertension? What are its causes? [2]
- In electrocardiogram, QRS complex stands for. [1]



- Give the significance of respiration. [1]

30. What are the effects of biotechnology with relation to human health? [4]

31. What is double fertilization? Describe the process in brief. [4]