



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

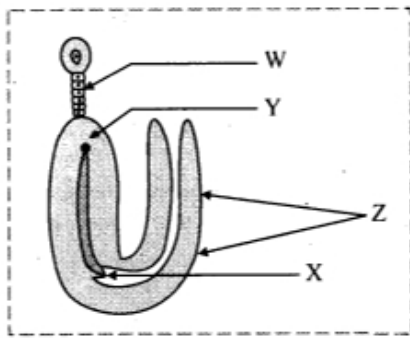
- Q. No. 27 to Q. No. 31 contain **Five long answer type** of questions carrying **Four marks** each. (Attempt any Three).

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) Due to specific mating behaviour, the members of population do not mate in _____ type of isolation. **[1]**
- a) Ethological b) Seasonal
c) Ecological d) Mechanical
- (b) 2-4 Dichlorophenoxy acetic acid is a _____. **[1]**
- a) Insecticide b) Rooting hormone
c) Herbicide d) Flowering hormone
- (c) If only one DNA molecule is subjected to PCR and the time required for each cycle is three minutes, then after five cycles, how many DNA molecules are obtained? **[1]**

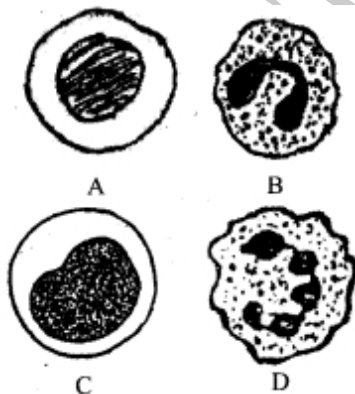


- (d) Draw a well labelled diagram of T.S. of Root showing water movement. [1]
- (e) What is the reason of eutrophication? [1]
- (f) Which is the primary precursor of IAA in plants? [1]
- (g) Why is zona pellucida retained around the egg till it reaches uterus? [1]
- (h) Arrange the following steps of DNA fingerprinting in correct sequence: [1]
- i. Gel electrophoresis
 - ii. Isolation of DNA
 - iii. Southern blotting
 - iv. Restriction digestion

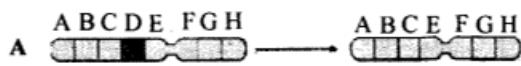
Section B

Attempt any 8 questions

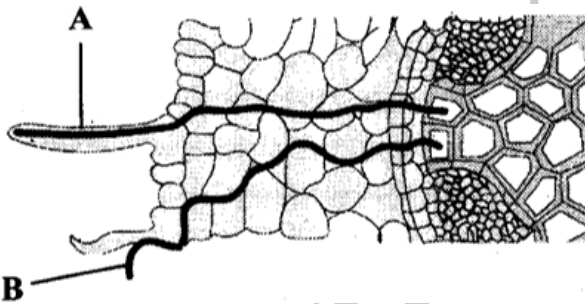
3. Answer the following: [2]
- (a) Define the term **recessive**. [1]
 - (b) If a carrier woman marries a colorblind man, what will be the phenotype of their progeny? Show in the form of a chart. [1]
4. Define the following terms: [2]
- i. Gene flow
 - ii. Chromosomal aberrations
5. Identify and write the names of given diagrams A, B, C and D [2]



6. Explain the technique of multiple ovulation embryo transfer (MOET) in animal breeding. [2]
7. Identify the types of chromosomal aberrations in the following figures A, B, C, D: [2]



8. **Answer the following:** [2]
- (a) Which method of conservation of biodiversity includes **hot spot** method? [1]
- (b) Which greenhouse gas is mainly responsible for global warming? [1]
9. Draw a neat labelled diagram showing steps of PCR. [2]
10. What is vernalization? Give the advantages of vernalization. [2]
11. i. What is ex-situ conservation? [2]
- ii. Mention any two places where the ex-situ conservation is undertaken.
12. Give the role/functions of any **two** gonadotropins. [2]
13. Identify and define 'A' and 'B' in relation to uptake of water by the root: [2]



14. What will be the length of eukaryotic DNA segment having 10 pairs of nucleotides? [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) Give the floral adaptations for chiropterophily. [2]
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) Define commensalism. [1]
- (b) Identify 'A' in the given graph of population growth: [2]
20. State the economic importance of lac. [3]
21. What is differentiation and redifferentiation? [3]
22. What is Neo-Mendelian genetics? Describe quantitative inheritance controlled by two pairs of genes. [3]
23. Give the location and one function of the following receptors: [3]

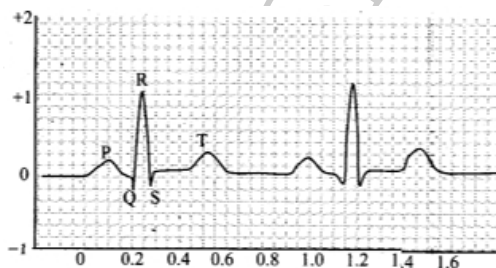
- i. Mechanoreceptors
- ii. Statoacoustic receptors
- iii. Baroreceptors

24. **Answer the following:** [3]
- (a) What is Anticodon? [1]
 - (b) Distinguish between heterochromatin and euchromatin with reference to staining property and activity. [2]
25. i. Describe the structure of lymphocytes and mention its types. [3]
- ii. Name the disorder caused due to abnormal and uncontrolled increase in number of WBCs.
- iii. State the functions of neutrophils.
26. Describe the structure of human sperm. [3]

Section D

Attempt any 3 questions

27. **Answer the following:** [4]
- (a) State the other name for Dentist's nerve. [1]
 - (b) i. Sketch and label the diagram of brain to show ventricles in coronal plane. [2]
 - ii. Name the cavity which is continuation of IVth ventricle.
 - (c) A child has low BMR, delayed puberty and mental retardation. Identify the disease. [1]
28. Describe the T.S. of human testis and explain the process of spermatogenesis. [4]
29. **Answer the following:** [4]
- (a) Sketch and label T.S. of vein. [2]
 - (b) In human pharynx, there is a set of lymphoid organs called _____. [1]
 - (c) In the electrocardiogram shown below, which wave represents ventricular diastole. [1]



30. Describe the steps of PCR technique. [4]
31. Explain the development of dicot embryo in angiosperms. [4]