

[Time: Three Hours]

[Marks: 100]

Please check whether you have got the right question paper.

- N.B:
1. All questions are **compulsory**.
 2. **Figures** to the **right** indicate full **marks**.
 3. **Draw** neat and labelled **diagrams** wherever **necessary**.

Q.1 A) Choose the correct option from the following:

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- The light reaction of photosynthesis takes place in _____.
 - Grana of chloroplast
 - Stroma of chloroplast
 - Membrane of mitochondria
 - Lysosomes
- Middle Lamella of plant cell wall is mainly composed of _____.
 - Cellulose
 - Pectin
 - Hemicellulose
 - Lignin
- Pectin a polysaccharide constituting the middle lamella of plant cell wall is generally present in the form of _____.
 - Zinc pectate
 - Sodium pectate
 - Calcium pectate
 - Potassium pectate
- The term ecosystem was coined by _____.
 - Philipson
 - Odum
 - Tansley
 - Ernst Haeckel
- _____ is the largest ecosystem.
 - Forest
 - Grassland
 - Aquatic
 - Desert
- Plants represent _____ in the ecosystem.
 - Primary consumers
 - Secondary consumers
 - Producers
 - Decomposers
- The correct genotype for a given character can be _____.
 - Pp
 - Ty
 - CD
 - Ab
- In recessive epistasis, the Mendel's dihybrid ratio of 9:3:3:1 is changed to _____.
 - 9:3:4
 - 9:7
 - 15:1
 - 9:6:1

- i. The type of inheritance pattern where neither gene dominates completely over the other and partially expresses itself is called _____.
 i) Dominant inheritance
 ii) Recessive inheritance
 iii) Codominance
 iv) None of the above
- j. When F_1 is crossed with pure recessive parent, it is called as _____.
 i) Back cross
 ii) Double cross
 iii) Test cross
 iv) Check cross

Q.1 B) Answer the following in **one sentence**:

- What are structural proteins?
- Give any two functions of chloroplast.
- Define Producers in a food chain.
- What do you mean by trophic level?
- What is heterozygote?

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Q.2 Answer **any two** from the following:

- Describe the ultrastructure and functions of Endoplasmic reticulum.
- Describe the Fluid Mosaic Model to explain the ultrastructure of plasma membrane.
- Explain the structure of plant cell in detail.
- Describe the ultrastructure of cell wall. Add a note on its functions.

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Q.3 Answer **any two** from the following:

- Define Ecosystem. Give an account of forest ecosystem.
- Discuss the laws of thermodynamics in an ecosystem.
- What is a food chain? Explain different types of food chains.
- Describe in brief biotic and abiotic components of ecosystem.

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Q.4 Answer **any two** from the following:

- What is Epistasis? Explain duplicate dominant Epistasis citing suitable example.
- With suitable examples, explain complete and incomplete dominance.
- Explain dihybrid ratio with suitable example.
- In sweet pea there are two independent genes C and P when present alone in dominant or recessive condition produce white coloured flowers but when these two dominant forms come together in homozygous or heterozygous condition purple flowers are produced. What will be the phenotype and genotype of the parents and progeny of the following crosses, also give the phenotypic ratio.
 - CcPp x ccPp
 - CCpp x CcPp

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Q.5 Write short notes on: **(Any Four)**

- Functions of chloroplast
- Plasmodesmata and its functions
- 'Y' shaped energy flow model
- Pyramid of Biomass
- Monohybrid ratio
- Multiple alleles with an example.

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