

Q.P. Code : 00216

[Time: Three Hours]

[Marks:100]

Please check whether you have got the right question paper.

- N.B:
1. All the 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: **10**
- (a) \_\_\_\_\_ suggested the Fluid Mosaic Model.  
 i) Singer & Nicholson    ii) Robertson    iii) Lindeman    iv) Odum
- (b) Dark reaction of photosynthesis takes place in \_\_\_\_\_.  
 i) grana of Chloroplast    ii) stroma of Chloroplast    iii) membrane of Mitochondria    iv) Lysosomes
- (c) Middle Lamella of plant cell wall is mainly composed of \_\_\_\_\_.  
 i) Cellulose    ii) Pectin    iii) Hemicellulose    iv) Lignin
- (d) \_\_\_\_\_ cannot be recycled in an Ecosystem.  
 i) Water    ii) Nutrients    iii) Energy    iv) Air
- (e) 'Energy can neither be created nor destroyed, it can only be converted from one form to another', is \_\_\_\_\_ Law of Thermodynamics.  
 i) 1<sup>st</sup>    ii) 2<sup>nd</sup>    iii) 3<sup>rd</sup>    iv) 4<sup>th</sup>
- (f) Lentic is \_\_\_\_\_ type of Ecosystem.  
 i) Freshwater    ii) Marine    iii) Desert    iv) Grassland
- (g) Plants are \_\_\_\_\_ of Ecosystem.  
 i) primary consumers    ii) decomposers    iii) tertiary consumers    iv) producers
- (h) \_\_\_\_\_ is a possible abbreviation for a genotype.  
 i) BC    ii) Pp    iii) Ty    iv) fg
- (i) The genes present on an organism represents the organism's \_\_\_\_\_.  
 i) Genotype    ii) Phenotype  
 iii) Physical traits    iv) Behavioural traits
- (j) In duplicate dominant epistasis, the Mendel's dihybrid ratio of 9:3:3:1 is changed to \_\_\_\_\_.  
 i) 9:3:4    ii) 15:1    iii) 9:7    iv) 12:3:1

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

- What are tubules?
- Define Desmosomes.
- Give the vertical zonation in Ocean.
- Define Ecosystem.
- What is a genotype?

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

- Explain the structure of a plant cell.
- Describe the ultrastructure and functions of Endoplasmic Reticulum.
- Write a note on ultrastructure and functions of Chloroplast.
- Describe the Fluid Mosaic Model to explain the structure of a plasma membrane.

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

- Explain energy flow in an ecosystem with the help of any one energy flow model.
- Define Ecosystem and give an account of its different components.
- Discuss the Laws of Thermodynamics in an Ecosystem.
- Discuss different components of Desert Ecosystem.

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

- Explain the terms 'Co-dominance' and 'Intermediate Inheritance' with suitable examples.
- Define and explain Mendel's Law of Independent Assortment giving suitable example.
- Define epistasis. Explain dominant epistasis with a suitable example.
- Two non-allelic genes govern the plumage in Parakeet. The genotype **BY** produces green plumage, **Byy** produces blue, **bbYy** produces yellow and **bbyy** produces white plumage. Give the phenotype of the parents, genotype and phenotype of progeny and phenotypic ratio in the following crosses:  
 i) **Bbyy** × **bbyy**      ii) **BbYy** × **BByy**

**Q.5** Write short notes (Any four):

- Functions of Cell wall.
- Functions of Cell membrane.
- Fresh water Ecosystem.
- Pyramid of Biomass.
- ABO blood groups in man.
- Mendel's seven characters of pea plant.