[Time: Three Hours] **[Marks. 100]**

Please check whether you have got the right question paper.

N.B: i) All questions are compulsory
ii) Figures to the right indicate full marks
iii) Draw neat and labeled diagrams whenever necessary

Q.1.(A) Choose the correct option from the following and rewrite the sentence **10**

a. The _____reaction of photosynthesis takes place in grana of the chloroplast.
i) dark ii) light iii) both dark and light iv) none of these

b. In 1965, _____suggested "Greater membrane Model" of plasma membrane.
i) Singer and Nicholson ii) Robertson iii) Robert Hook iv) Park and Beggins

c. _____is prokaryotic organism.
i) Fungi ii) Plant iii) Animal iv) Bacteria

d. _____percent of proteins are found in plasma membrane.
i)40 ii) 60 iii) 30 iv) 20

e. _____ is the lentic water ecosystem.
i)Streams ii) Rivers iii) Pond iv) none of these

f. _____forest shows vertical zonation in vegetation.
i)Tropical rain ii) Temperate deciduous
iii) Temperate evergreen iv) Montane coniferous

g. The upright energy flow model was suggested by_____.
i) E.P. Odum ii) Lindeman iii) Kozlovsky iv) Philipson

h. The type of inheritance pattern where both the alleles in heterozygote are equally expressed is called _____.
i) dominant inheritance ii) intermediate inheritance
iii) co-dominance iv) recessive inheritance

i. When F_1 individual is crossed with pure recessive parent, it is called as _____.
i) back cross ii) test cross iii) reciprocal cross iv) check cross

j. ____alleles for one trait are normally found in a genotype of a diploid organism.
i) 1 ii) 2 iii)3 iv) 4

Q.1. B Answer the following in one sentence **10**

a. What is plasmodesmata?
b. Define net primary productivity.
c. What is eutrophication?
d. What is genotype?
e. What are multiple alleles?

Q.2. Answer any two of the following. **20**

a. Explain in detail the chemical composition of plasma membrane.
b. Describe Bi-Lipid layered model of plasma membrane to explain its ultra-structure. Add a note on its functions.
c. Describe the ultra-structure and functions of Chloroplast.
d. Distinguish between prokaryotic and eukaryotic cell.

Q.3. Answer any two of following. **20**

a. Explain Y shaped energy flow model.
b. Discuss Laws of thermodynamics in an ecosystem.
c. What do you mean by ecosystem? Describe an aquatic ecosystem.
d. Define food chain? Explain different types of food chains.

Q.4. Answer any two of following. **20**

a. Define monohybrid ratio. Explain incomplete dominance and co-dominance giving examples.
b. Explain gene interaction with reference to comb pattern in fowl.
c. What is epistasis? Explain recessive epistasis giving a suitable example.
d. In sweet pea there are two independent genes C and P when present alone in dominant or recessive condition produces white coloured flowers but when these two dominant genes come together in homozygous or heterozygous condition purple coloured flowers are produced.

What will be the phenotype and genotype ratio of the progeny in the following crosses. Also give the phenotype of parents.

a) CcPp X ccPp **b) Ccpp X CcPP**

Q.5. Write short notes on any four **20**

a. Functions of plasma membrane
b. Components of endoplasmic reticulum
c. Biotic components of an ecosystem
d. Tropical deciduous forest
e. Dihybrid ratio
f. Law of dominance

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