[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. Dark reaction of photosynthesis takes place in _____ of chloroplast.
i. grana ii. stroma iii. outer membrane iv. thylakoids

b. Calcium and Magnesium pectates constitute the _____.
i. primary cell wall ii. middle lamella
iii. secondary cell wall iv. plasma membrane

c. Linear DNA molecules with histone proteins are found in _____ cells.
i. eukaryotic ii. prokaryotic iii. viral iv. plasmids

d. _____ membranes are associated with enzyme systems showing detoxification properties.
i. RER ii. Chloroplast iii. Nucleus iv. SER

e. _____ polysaccharide is made up of glucose molecules linked by glycosidic bonds.
i. Pectin ii. Cellulose iii. Lignin iv. Suberin

f. The rate at which the heterotrophic organism synthesizes energy yielding substance is called _____.
i. primary productivity ii. biomass productivity iii. net productivity
iv. secondary productivity

g. _____ consists of evergreen and tall trees.
i. Desert ii. Swamp forest iii. Deciduous forest iv. Tropical Rain forest

h. Each step in the food chain is a _____level.
i. strata ii. layer iii. trophic iv. component

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

j. The genetic constitution of organism represents the _____.
i. phenotype ii. behavioral traits iii. genotype iv. physical traits

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

a. Define net primary productivity.
b. Why chloroplasts are important plant cell organelle?
c. Give any two functions of cell wall.
d. What is heterozygote ?
e. Define monohybrid ratio.

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

a. Explain the ultra structure of Plasma membrane. Add a note on its functions.
b. Describe the ultra structure and functions of Endoplasmic reticulum.
c. Explain the structure of a typical Eukaryotic plant cell.
d. Write an account on the ultra structure and functions of chloroplast.

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

a. Define ecosystem. Give an account of its different components.
b. Give an account of tropical evergreen and temperate deciduous forests.
c. Explain upright energy flow model.
d. What is food chain and food web. Explain different types of food chain.

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

a. Explain intermediate inheritance and co-dominance with suitable example.
b. Define dihybrid ratio. Explain it with suitable example.
c. Explain gene interaction with respect to comb pattern in fowl.
d. In summer squashes gene 'W' is epistatic to gene '**Y'** and '**y'** and produces white colored fruits whenever present in homozygous or heterozygous dominant form **WW** or **Ww.** The **g**ene '**Y'** produces yellow colored fruits when present in dominant form **YY** or **Yy.** Homozygous recessive **yy** produces green colored fruits. Give the genotypes and phenotypes of progeny of the following crosses. Also give the phenotype of parents.
i. WwYy X WWYy ii. wwYy X wwyy

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

a. Functions of cell wall
b. Plasmodesmata and its functions
c. Laws of thermodynamics
d. Pyramid of Biomass
e. Laws of Segregation
f. Multiple alleles

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