

PART ONE

Attempt both questions

- Q.1** Choose the correct answer 10
- (i) The degree of proximity of one plant species with another can be referred to as:
 - (a) Intraspecific association
 - (b) Interspecific association
 - (c) Sociability
 - (ii) Constancy refers to the degree of uniformity of occurrence of plants in a stand of one community type:
 - (a) in several stands of various community types
 - (b) several stands of one community type
 - (c) In a stand of one community type
 - (iii) A root concentrates minerals by:
 - (a) Active transport
 - (b) Facilitated diffusion
 - (c) Osmosis
 - (d) Diffusion
 - (iv) The organisms which are not native to a geographical area but become aggressive competitors are called:
 - (a) Endangered
 - (b) Endemic
 - (c) Invasive
 - (v) If more than 20% of the land surface is covered by tree foliage, the forests are called:
 - (a) Open woodland
 - (b) Closed Campy Fort
 - (c) Scrub lands
 - (vi) In polluted water the value becomes high for:
 - (a) BOD
 - (b) DO
 - (c) DMS
 - (vii) The species showing the highest degree of fidelity are:
 - (a) Exclusive species
 - (b) Companion species
 - (c) Selective species
 - (viii) Degree of succulence of xerophytes is the ratio between:
 - (a) Height to weight
 - (b) Size to weight.
 - (c) Surface to weight
 - (ix) Which of the following is the most likely outcome of a cross between a heterozygous tall plant and a heterozygous tall plant?
 - (a) 63 tall: 59 short
 - (b) 76 tall: 23 short
 - (c) 24 tall: 49 medium: 25 short
 - (d) 53 tall: 147 short
 - (x) Which of the following is a testcross?
 - (a) AABB x AABB
 - (b) AaBb x AaBb
 - (c) AaBb x AABB
 - (d) aabb X AaBb
 - (xi) Plants do not store carbohydrates as glucose because it:
 - (a) dissolves in water, thereby altering the osmotic balance
 - (b) attracts insect herbivores
 - (c) is an unstable molecule
 - (d) would replace in DNA synthesis.
 - (xii) When humification is slow the C/N ratio is
 - (a) Low
 - (b) High
 - (c) Uniform
 - (xiii) If an affected male has affected daughters and sons in about the same number as unaffected daughters and sons, the trait is likely to be an
 - (a) X-linked dominant trait
 - (b) autosomal recessive trait
 - (c) autosomal dominant trait
 - (d) X-linked recessive trait
 - (xiv) In the electron transport system, the final acceptor of electron is:
 - (a) cytochrome b
 - (b) cytochrome a3
 - (c) oxygen
 - (d) Ubiquinone
 - (xv) The molecule in C₄ pathway that combines with CO₂ is:
 - (a) Glyceraldehyde phosphate
 - (b) Ribulose biphosphate
 - (c) Phosphoenol pyruvic acid
 - (d) Citric acid
 - (xvi) Waxes are formed from long-chain:
 - (a) acids and amines
 - (b) amines and alcohols
 - (c) alcohols and aldehydes
 - (d) acids and alcohols
 - (xvii) Disulfide bridges in proteins can be broken by:
 - (a) Dissolving the protein in water
 - (b) Cooling the protein
 - (c) Oxidizing agent
 - (d) dehydrating agents
 - (xviii) A major energy product of the citric acid cycle is:
 - (a) ATP
 - (b) CAMP
 - (c) NADH
 - (d) FADH₂
 - (xix) The most abundant lipid in cell membrane is:
 - (a) Phospholipid
 - (b) Glycolipid
 - (c) Steroid
 - (d) Cholesterol
 - (xx) The function of golgi complex is:
 - (a) glycosylation
 - (b) secretion
 - (c) sulphation
 - (d) cell three a, b, c

- Q.2** Fill in the blanks: 10
- (i) The _____ is a network of protein element that extend throughout the cytosol in eukaryotic cells.
 - (ii) _____ are the regions where non-sister chromosomes are still attached due to crossing over.
 - (iii) The most visible structure in a non-dividing cell nucleus is the _____
 - (iv) In a C₃ plant, carbon fixation takes place in the _____ cells, whereas in a C₄ plant, it takes place in the _____ cells.
 - (v) Mineral elements which are not essentially required but only stimulate growth in plants are known as _____.
 - (vi) _____ are the fundamental building blocks of nucleic acids.
 - (vii) The xerophytes have a _____ osmotic potential in their cells.
 - (viii) Permanent wilting is a result of _____ drought.
 - (ix) The parent material transported by the force of gravity is called _____.
 - (x) Hygroscopic water can only be lost from the soil by heating, in an oven at _____ for 24 hours.

PART TWO

Attempt any two questions: All questions carry equal marks.

- Q.3**
- (a) Pollution is outcome of modern civilization, how it is affecting the soil structure? 5
 - (b) How water causes soil erosion? What measure should be taken to prevent? 5
 - (c) How stomata regulate transpiration in plants? 5
 - (d) Explain the significance of light and dark period in Photoperiodism. 5
- Q.4**
- (a) Give characteristics of a Climax Community. 5
 - (b) Describe main classes of enzymes found in plants. 5
 - (c) What are the causes of Waterlogging in Pakistan? What measures have taken to remediate such soils? 5
 - (d) How transport of Auxin takes place in plants? 5
- Q.5**
- (a) What are Trophic levels, how Energy Flow in an ecosystem? 5
 - (b) Describe the mechanism of CO₂ fixation in Photosynthesis. 5
 - (c) Explain electron Transport Chain. 5
 - (d) How Physiognomy can be helpful in distinguishing different type of communities. 5

PART THREE

Attempt any two questions. All questions carry equal marks.

- Q.6**
- (a) Cancer cells has escaped from cell-cycle control. Discuss. 7
 - (b) Explain Genetic Code. How it is transcribed? 7
 - (c) Give salient features of Lamarckism. How it differ from Darwinism 6
- Q.7**
- (a) Give brief account of structure and functions of Cytoskeleton. 7
 - (b) What are modes of recombination in Bacteria? Explain Transformation. 7
 - (c) What is the frequency of heterozygous Aa in a randomly mating population in which the frequency of all dominant phenotypes is 0.19? 6
- Q.8**
- (a) Illustrate the role of Meiosis in causing Genetic variations 6
 - (b) What is meant by ENEUPLOIDY? Give various types of eueuploids along with their significance. 6
 - (c) A normal woman whose mother was colorblind has a son. Nothing is known of the color-vision phenotype of the father. What is the probability that the son will be colorblind? 4
 - (d) Define Base Substitution Mutations, give its different types. 4