(2½ Hours) [Total Marks : 75

N.B. : (1) All questions are compulsory.
      (2) All questions carry equal marks.
      (3) Draw neat labelled diagram wherever necessary.

1. Attempt **any two** of the following :   15
    (a) Describe the glyoxylate cycle. Add a note on its signfiicance.
    (b) Describe the different mechanisms of active transport of solutes.
    (c) Describe the process of degradation of fattyacids.
    (d) Explain Munch hypothesis to describe process of translocation of organic solutes.

2. Attempt **any two** of the following :   15
    (a) Explain how tetrad analysis in *Neurospora* help in determining the gene centromere distance.
    (b) What are induced mutations ? Explain the role of base analogues in causing Mutations.
    (c) Write a note on "DNA replication errors as a cause of mutations."
    (d) With the help of suitable examples, explain deamination and depurination as causes of mutation.

3. Attempt **any two** of the following :   15
    (a) What is bioremediation ? Discuss factors responsible for bioremediation.
    (b) What is bioaccumulation ? Describe the characteristics of pollutants responsible for their bioaccumulation.
    (c) What is phytoremediation ? Discuss the various processes invovled in phytoremediation of organic pollutants.
    (d) "Aquatic ecosystem plays an important role in biomagnification". Explain.

4. Attempt **any two** of the following :   15
  (a)   Describe the different levels of biodiversity.
  (b)   What is phytogeography ? Discuss any three phytogeographical regions of India.
  (c)   Describe the causes of loss of biodiversity.
  (d)   With help of suitable examples, describe the biodiversity of tropical forests.

5. Write short notes on **any three** :   15
  (a)   Radiation as a Source of mutation
  (b)   Suppressor mutations
  (c)   Microbial population in bioremediation
  (d)   Montane temperate forest
  (e)   Contents of sieve tubes
  (f)   Condensation of neutral fats

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