

Q.P. Code : 12847

(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 process of phloem loading and unloading.
- (b) Give an account of energetics of fatty acid degradation.
- (c) What is passive transport ? Describe the various mechanisms of passive transport as observed in plant cells.
- (d) Describe the process of biosynthesis of fatty acids.

2. Attempt **any two** of the following : 15

- (a) Explain role of radiation as a source of mutation.
- (b) Define point mutations. Explain frame shift mutations and silent mutation.
- (c) With reference to *Neurospora* genetics, explain the following terms:
 - (i) Second division segregation
 - (ii) Non-Parental ditypes
 - (iii) Parental ditypes.
- (d) What are chemical mutagens ? With the help of suitable examples, explain the role of base modifying agents in causing mutations.

3. Attempt **any two** of the following : 15

- (a) Describe role of aquatic ecosystem in biomagnification.
- (b) With respect to phytoremediation explain the terms :
 - (i) Phytoextraction
 - (ii) Phytodegradation
 - (iii) Phytostabilisation
- (c) Describe the factors involved in bioremediation
- (d) What is bioaccumulation ? Describe the process of bioaccumulation in a terrestrial ecosystem.

4. Attempt **any two** of the following :

15

- (a) Describe various approaches made towards conservation of biodiversity.
- (b) What is phytogeography ? Describe any three phytogeographical regions of India.
- (c) What is genetic diversity ? Describe molecular methods used for assessing genetic diversity.
- (d) With the help of suitable examples describe biodiversity of temperate forests.

5. Write short notes on **any three** :

15

- (a) Advantages and disadvantages of phytoremediation.
 - (b) Biotransformation
 - (c) Levels of biodiversity
 - (d) Munch hypothesis
 - (e) Types of lipids
 - (f) Role of mutation in plant breeding.
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