

Total number of printed pages-4

3 (Sem-3) BOT M1

2021

(Held in 2022)

BOTANY

(Major)

Paper : 3-1

(Ecology, Plant Geography and Evolution)

Full Marks : 60

Time : Three hours

**The figures in the margin indicate
full marks for the questions.**

1. Choose the correct answer of the following :
1×7=7

(a) All heliophytes show the following
morphological adaptations except —

- (i) stem with shorter internodes and
profuse branching
- (ii) leaves bear numerous hair
- (iii) numerous longer roots showing
profuse branching
- (iv) leaves oriented at right angles to
incident radiation

Contd.

*UB SET.
NON CBES, (MAJOR)
Paper - 3-1, 3-2*

10570
3229
0288

(b) Dominance of chamaephytes in a particular region indicates that the climatic condition is —

- (i) warm and moist
- (ii) extremely cold
- (iii) warm and dry
- (iv) hot and dry

(c) Successful establishment of pioneer species in a bare area during the process of succession is called :

- (i) Nudation
- (ii) Ecesis
- (iii) Aggregation
- (iv) Reaction

(d) Which of the following is not categorised under primary air pollutant ?

- (i) Methane
- (ii) Ammonia
- (iii) PAN
- (iv) Carbon dioxide

(e) The two important environmental variables that determines the vegetation types and animal life in a particular biome are —

- (i) precipitation and temperature
- (ii) temperature and soil
- (iii) precipitation and soil
- (iv) light and precipitation

(f) A species which are distributed in specific geographical region or ecological condition is called as :

- (i) Cosmopolitan species
- (ii) Endemic species
- (iii) Flagship species
- (iv) Keystone species

(g) Pyramid of Energy takes into consideration —

- (i) total quantity of energy utilised by producers in an ecosystem over a given period of time
- (ii) total amount of energy utilised by producers and decomposers
- (iii) total amount of energy utilised by organisms of all trophic levels in an ecosystem
- (iv) All of the above

2. Write short notes on the following :

2 × 4 = 8

- (a) Ecads
- (b) Biomagnification
- (c) Genetic drift
- (d) Ecological Niche.

3. Write on **any three** of the following : $5 \times 3 = 15$

- (a) Anatomical adaptations of xerophytes
- (b) Ecosystem services
- (c) Flora of Eastern Himalaya
- (d) Greenhouse effect and climate change
- (e) Types of Aquatic Ecosystem.

4. Answer **any three** of the following : $10 \times 3 = 30$

- (a) What is biogeochemical cycle ? Discuss briefly the cycling of carbon in the ecosystem. $3+7=10$
- (b) Enumerate the various factors that regulate the distribution of plants on earth. 10
- (c) Define speciation. With suitable examples, explain briefly allopatric and sympatric speciation. $2+8=10$
- (d) Describe briefly the different quantitative characteristics of plant communities. 10
- (e) Discuss the process of succession that occurs in a bare rock. 10
- (f) What is age structure of population ? Write briefly the various types of age structures found in population along with its significance. $2+8=10$