

**2 0 2 5**

( NEP—2020 )

( 2nd Semester )

**BOTANY (MAJOR/MINOR)**

**( Plant Ecology and Environmental Biology )**

*Full Marks : 75*

*Time : 3 hours*

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

**( SECTION : A—OBJECTIVE )**

( Marks : 10 )

Tick (✓) the correct answer in the brackets provided :

1×10=10

**1.** Flow of energy in an ecosystem is

- (a) bidirectional ( )
- (b) unidirectional ( )
- (c) multidirectional ( )
- (d) bidirectional and unidirectional ( )

**2.** Genetically different population with the same physical features is known as

- (a) ecotype ( )
- (b) ecads ( )
- (c) community ( )
- (d) ecosystem ( )

**3.** Which of the following is not a biogeochemical cycle?

- (a) Oxygen cycle ( )
- (b) Carbon cycle ( )
- (c) Nitrogen cycle ( )
- (d) Ozone cycle ( )

4. What does UNFCCC stand for?
- (a) United Nations Framework Control on Climate Change ( )  
 (b) United Nations Framework Convention on Climate Change ( )  
 (c) United Nations Framework Communications on Climate Change ( )  
 (d) United Nations Framework Climate Communications Council ( )
5. In which approach do we protect and conserve the whole ecosystem to protect the endangered species?
- (a) Ex-situ conservation ( ) (b) Off-site conservation ( )  
 (c) No conservation ( ) (d) In-situ conservation ( )
6. Which of the following places in India is a biodiversity hotspot?
- (a) Western Ghats ( ) (b) Thar Desert ( )  
 (c) Phawngpui ( ) (d) None of the above ( )
7. Which of the following is a diversity index?
- (a) Upright index ( ) (b) Inverted index ( )  
 (c) Marius index ( ) (d) Simpson's index ( )
8. Which of the following sources of energy can be replenished after a short period of time?
- (a) Solar ( ) (b) Coal ( )  
 (c) Natural gas ( ) (d) Nuclear energy ( )
9. Which ends up with the most poison/chemical due to biological magnification?
- (a) Producers ( )  
 (b) Herbivores ( )  
 (c) Organisms of highest trophic level ( )  
 (d) Organisms of lowest trophic level ( )
10. The ozone layer filters
- (a) gamma rays ( ) (b) UV rays ( )  
 (c) beta rays ( ) (d) X-ray ( )

**( SECTION : B—SHORT ANSWERS )**

( Marks : 15 )

Write short notes on *five*, taking at least *one* from each Unit : 3×5=15

UNIT—I

1. Food web
2. Ecads

UNIT—II

3. Plant responses to anthropogenic global change
4. Significance of phosphorous cycle in the ecosystem

UNIT—III

5. Endemism
6. Floristic region of Eastern Himalayas

UNIT—IV

7. Acid rain
8. Photochemical smog

**( SECTION : C—DESCRIPTIVE )**

( Marks : 50 )

Answer *five* questions, taking at least *one* from each Unit : 10×5=50

UNIT—I

1. What is ecological pyramid? Describe the different types of ecological pyramid. 2+8=10
2. Write notes on the following : 5+5=10
  - (a) Difference between density and frequency in community ecology
  - (b) Biotic components of ecosystem

UNIT—II

3. What is ecological succession? Explain the types of ecological succession. 2+8=10
4. Write short notes on the following : 5+5=10
- (a) Energy flow
  - (b) Climate change

UNIT—III

5. Give brief accounts on : 5+5=10
- (a) Simpson dominance index
  - (b) Biodiversity hotspot
6. Write notes on the following : 5+5=10
- (a) Loss of biodiversity
  - (b) Ex-situ and in-situ conservation

UNIT—IV

7. What is biosphere? Describe the structure and components of biosphere. 2+8=10
8. Write notes on the following : 5+5=10
- (a) Ozone layer depletion
  - (b) Non-biodegradable pollutants

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