P. P. SAVANI UNIVERSITY
Second Semester of B.Sc. Backlog Examination
December-2021
SSES1100–Ecology and Ecosystems I

24.12.2021, Friday **Time: 09:00 a.m. to 11:30 a.m.** **Maximum Marks: 60**

Instructions:
1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

Section-I (Total Marks - 30)

Q.1 Short Questions **[10]**

1.1 Objectives **[05]**

1.1a The major source of fresh water in India is
- **A** Rainfall
- **B** Ground water
- **C** Atmospheric water
- **D** Ocean water

1.1b Population of individuals which although belong to the same genetic stock, but differ markedly in phenotypes such as size, shape and number of leaves
- **A** Ecotype
- **B** Ecad
- **C** Ecotone
- **D** Ecocline

1.1c What would you do to prevent environmental damage?
- **A** Plant trees
- **B** Stop deforestation
- **C** Control pollution
- **D** All of the above

1.1d Which one of the following terms describes the position of species within a ecosystem, describing both the range of conditions necessary for persistence of the species, and its ecological role in the ecosystem?
- **A** Ecotone
- **B** Ecological niche
- **C** Habitat
- **D** Home range

1.1e Population dynamics is related to
- **A** Increase in population
- **B** Decrease in population
- **C** Change in population
- **D** All of the above

1.1f Community is defined as
- **A** Group of independent, interacting population of same species
- **B** Group of independent and interacting population of same species in specific area

C Group of independent and interacting population of different species in specific area

D Group of independent and interacting population of different species

1.1g Energy is maximum at
- A Lowest trophic level
- B Highest trophic level
- C In the middle
- D None of the above

1.1h Only ___% of energy at a trophic level is transferred to the next trophic level in a food chain.
- A 10%
- B 20%
- C 25%
- D 80%

1.1i These plants get some of their food by trapping and consuming animals (mainly insects).
- A Herbivorous plants
- B Carnivorous plants
- C Autotrophs
- D Producers

1.1j It is defined as the total number of individuals or biomass per unit of the total space.
- A Crude density
- B Specific density
- C Total density
- D Realized density

1.2 Answer the Following: (MCQ/Short Question/Fill in the Blanks) **[05]**

1.2a A _____ is a group of same aged individuals.

1.2b Density-dependent factors affect population growth as a function of the _____.

1.2c An _____energy pyramid shows the amount of energy that moves from one trophic level to another in a food chain.

1.2d The existence, abundance and distribution of a species in an ecosystem are determined by the range of tolerance to environmental variables. (True/False)

1.2e The ability of an organism to express different phenotypes depending on the environment. (True/False)

Q.2 Short Notes (Attempt any two) **[06]**

A Describe three levels of biodiversity

B Give diagrammatic representation of structure of ecosystem

C Explain Liebig's law of minimum.

Q.3 Explain in detail (Attempt any two) **[14]**

A Explain Shelford's Law of Tolerance along with diagram.

B Describe levels of organization in ecology.

C Illustrate characteristics of population.

Section-II (Total Marks - 30)

Q.1 Short Questions [10]

1.1 Objectives [05]

1.1a The deep sleep in which animal's body temp drops, body activity (metabolism) are slowed way down to conserve energy.

A Hibernation
B Mimicry
C Migration
D Homeostasis

1.1b Which theory have been proposed to define, identify and interpret the climax communities?

A Polyclimax theory
B Climax pattern theory
C Monoclimax theory
D All of the above

1.1c According to this model certain pioneer species with qualities ideal for early succession can colonize the newly exposed landforms after an ecological disturbance

A Facilitation model
B Tolerance model
C Inhibition model
D None of the above

1.1d The development of a bare area without any form of life due to several causes such as landslide, erosion, deposition is known as

A Ecesis
B Nudation
C Invasion
D Establishment

1.1e Gas molecules absorbing thermal infrared radiation and present in large quantity to change the climate system is known as

A Ozone gases
B Beta radiations
C Alpha radiations
D Greenhouse gases

1.1f The objective of Environment studies is

A Raise consciousness about environment conditions
B To teach environmentally appropriate behaviour
C Create an environmental ethic sensitive society
D All of the above

1.1g World environment day is on

A 5th May
B 5th June
C 18th July
D 16th August

1.1h When an organism is subjected to changed condition in laboratory, organisms

show compensatory changes to the new environment, this is termed as

A Acclimation
B Adaptation
C Homeostasis
D Acclimatization

1.1i The word Environment is derived from

A Greek
B French
C Spanish
D English

1.1j Greenhouse gas present in very high quantity is

A Ethane
B Carbon dioxide
C Propane
D Methane

1.2 Answer the Following: (MCQ/Short Question/Fill in the Blanks) **[05]**

1.2a The term population growth refers to the change in the number of individuals in a population with time. (True/False)

1.2b In open population change in population is related to birth, death, immigration and emigration of individuals. (True/False)

1.2c Which greenhouse gas is present in very high quantity?

1.2d A population shows _____ growth rate if there is no limitation on growth that is an idealized unlimited environment.

1.2e In _____ population expansion decreases as resources become scarce.

Q.2 Short Notes (Attempt any two) **[06]**

A Explain mechanism of of ecological succession.
B Describe three types of species dispersion.
C Discuss different methods for measuring population density.

Q.3 Explain in detail (Attempt any two) **[14]**

A Explain different types of age pyramids with diagram.
B Explain species area curve.
C Explain different types of adaptations in animals?