Rani Rashmoni Green University
Environmental Science
Semester I
COURSE CODE GEST-11
End Term Examination 2024

Full Marks: 40 **Time: 02hr.**

Answer at least three (3) questions from each unit and two (2) from any unit of your choice.
All the questions carry equal marks (5)

Unit 1
(Introduction to Environmental science and Sustainable Development)

1. Why is sustainable architecture essential? Briefly discuss the factors on which the sustainability of a built structure depends.

   2+3=5
2. Enlist the environmental issues of an urban area. Briefly discuss the components considered for calculation of ecological footprint.

   2+3 = 5
3. What is the SDG India Index? Enlist the initiatives adopted by Government of India towards SDG progress.

   2+3=5
4. Define sustainable agriculture. Differentiate Conservative and Regenerative Agriculture.

   2+3=5
5. What was the relation between the Climatic Changes and the decline of Indus Civilization?

   5
6. Write short notes on any two 2.5+2.5=5
   a) Three Pillar Model of sustainable development
   b) Environmentalism
   c) Carbon cycle
   d) Planetary boundaries

Unit 2
(Principles of Ecology)

1. Nitrogen requires huge amount of energy to be utilized in the food web, however, it is utilized by organisms through chain of processes. What are these processes? Which organisms are involved?

   3+2=5
2. Show graphical representations of fluctuations above and below carrying capacity. Mention six differences of r-selected and k-selected populations.

   2+3=5

3. Define food chain. Why the number of trophic level in a food chain is restricted usually not more than four? Write the role of decomposers in an ecosystem.

1+2+2=5

4. What is autogenic and allogenic succession? In a newly formed ecosystem 3 species were immigrated in the first year, in the second year one species was extinct and two new species were immigrated and total number of species became 5. In the third year, one species was immigrated and extinction was nil and total number of species became 6. Calculate the turnover rate of species in first two years.

2+3=5

5. Explain fundamental and realize niche with suitable example. What is patch in a landscape? The length and width of a forest is 24 km and 10 km respectively. A 10 km wide road is constructed which divides the forest into two equal parts each with 7km length. Calculate the area, edge and Edge-Area ratio of forest before and after the construction of road.

2+3=5

6. Write short notes on any two 2.5+2.5=5
    a) Ecotone
    b) Gause's Principle
    c) Population interactions
    d) Resource partitioning