

(First Semester)

Branch - ENVIRONMENTAL SCIENCE

ECOLOGY AND SUSTAINABLE DEVELOPMENT

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

$$(10 \times 1 = 10)$$

Question No.	Question	K Level	CO
1	The ecosystem concept was first introduced by a) E.P. Odum b) A.G. Tansley c) Charles Elton d) Linnaeus	K1	CO1
2	Which pyramid is always upright? a) Pyramid of biomass b) Pyramid of energy c) Pyramid of numbers d) All of the above	K2	CO1
3	K-selected species are characterized by a) High reproductive rate b) Small body size c) Few offspring with parental care d) Short lifespan	K1	CO2
4	Which biome has the highest net primary productivity? a) Desert b) Grassland c) Tropical rainforest d) Tundra	K2	CO2
5	The Shannon-Weiner Index is used to measure a) Soil texture b) Species diversity c) Water quality d) Population density	K1	CO3
6	Which of the following endangered species is NOT part of the recent Tamilnadu Rs.1 crore conservation initiative? a) Lion- Tailed macaque b) Madras Hedgehog c) Nilgiri Tiger d) Striped Hyena	K2	CO3
7	Which of the following is NOT an <i>in-situ</i> conservation method? a) National parks b) Wildlife sanctuaries c) Seed banks d) Biosphere reserves	K1	CO4
8	The IUCN category "CR" stands for a) Commonly Rare b) Critically Endangered c) Conservation Reserve d) Critical Range	K2	CO4
9	The concept of "Limits to Growth" was presented by a) Brundtland Commission b) Meadows et al. (Club of Rome) c) UNEP d) Rio Earth Summit	K1	CO5
10	Which of the following is an economic indicator of sustainable development? a) Per capita income b) Literacy rate c) Infant mortality rate d) Life expectancy	K2	CO5

Cont..

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Question No.	Question	K Level	CO
11.a.	Explain the ecosystem components with examples.	K2	CO1
	(OR)		
11.b.	Describe the nitrogen cycle and its ecological significance.		
12.a.	Discuss the ecological characteristics of major terrestrial biomes.	K3	CO2
	(OR)		
12.b.	Explain the stages and types of ecological succession.		
13.a.	Illustrate the use of transects and quadrats in ecological studies.	K3	CO3
	(OR)		
13.b.	Explain the concept and significance of ecosystem services.		
14.a.	Analyse the role of IUCN in biodiversity conservation.	K4	CO4
	(OR)		
14.b.	Evaluate various <i>ex-situ</i> conservation strategies with suitable examples.		
15.a.	Assess the role of sustainable development indicators in policy making.	K4	CO5
	(OR)		
15.b.	Examine the principles and challenges of sustainable development in India.		

SECTION - C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Question No.	Question	K Level	CO
16	Analyse ecosystem stability and resilience with reference to ecological disturbances such as invasive species, climate change, and habitat fragmentation.	K4	CO1
17	Evaluate the ecological importance of species interactions and their role in shaping community structure, citing case studies.	K5	CO2
18	Critically examine the applicability of biodiversity indices in policymaking and conservation, with special reference to India's EIA framework.	K5	CO3
19	Design an integrated forest and wildlife management framework for India that addresses conservation-development conflicts in mining, agriculture, and infrastructure expansion.	K6	CO4
20	Propose a roadmap for India to achieve net-zero carbon emissions by 2070, integrating sustainable development strategies across energy, transport, and agriculture sectors.	K6	CO5

Z-Z-Z END