

Sardar Patel University
M.Sc. III semester Examination
PS03CBOT-3: Environmental and Ecological principles

December 4, 2012

2.30 pm to 5.30 pm

Note: Figures on the right indicate the full marks for each question.

1. Tick the most appropriate answer to the following: (8)
- (i) Which of the following type of biome does occur in Gujarat?
(a) Tundra (b) Taiga
(c) Both a and b (d) Neither a nor b
- (ii) Detrivores derive their energy from:
(a) Producers only (b) Consumers only
(c) Both a and b (d) Neither a nor b
- (iii) Which day is celebrated as "World Environmental Day"?
(a) 16th September (b) 5th June
(c) 2nd October (d) 16th June
- (iv) Total organic matter present in an ecosystem is called:
(a) Biome (b) Biomass
(c) Biodiversity (d) Biological potential
- (v) Which of the following does not fall into the biogeographical regions of India
(a) South Eastern Himalayas (b) North Eastern Himalayas
(c) Western Ghats (d) Deccan Peninsula
- (vi) Ramsar convention was held in the year:
(a) 1961 (b) 1959 (c) 1979 (d) 1971
- (vii) Primary succession occurs in a place where there were:
(a) Biotic components did not occur earlier
(b) Biotic components occurred earlier but destroyed
(c) Neither biotic nor abiotic components occurred earlier.
(d) Biotic and abiotic components occurred earlier but both components destroyed.
- (viii) The first biosphere reserve of the world was established in:
(a) 1959 (b) 1969 (c) 1979 (d) 1949

(PTO)

2. Write short answers to any seven of the following: (14)

- (i) Draw an ecological pyramid of numbers or biomass for an urban ecosystem and compare it with that of rural ecosystem.
- (ii) Arrange the following words in descending order in respect of their complexity. Define, in brief, each group.
"Species, Ecosystem, Community and Population".
- (iii) Explain how the concentration of non-biodegradable substances and the amount of energy is decreased / increased in the hierarchy of trophic levels.
- (iv) Name some plants which do not occupy the first trophic level of food chain. Draw a suitable food chain indicating them?
- (v) Define bioremediation. What are its applications?
- (vi) What is Biodiversity Act? When is it enforced in India?
- (vii) List out different functions of GPCB. How are they performed?
- (viii) In the recent past a large pond in the centre of a town is filled with soil for creating a commercial complex. List the most important ecological and economic consequences of this act.
- (ix) What is acid rain? What are its impacts?
- (x) What are the major causes and consequences of ozone depletion?

3. a. "Describe the major factors responsible for the degradation of natural ecosystems. (6)

b. What is the full form of "GLOBE"? Write a short note on it. (6)

OR

b. Write notes on vehicular pollution. Suggest a few preventive measures. (6)

4. a. Describe in brief different laws enforced by the Government of India in the context of air pollution control? (6)

b. "Vallabh Vidyanagar is a pollution-free urban ecosystem" Do you agree with the statement or not? Justify your answer. (6)

OR

b. Draw different types of ecological pyramids suitable for a grassland ecosystem. (6)

(Contd... on page 3)

5. a. Species diversity of an ecosystem has a great influence on its stability". Justify. (6)

b. Draw different steps involved in Nitrogen cycle. What is its ecological relevance? What are different threats influencing this cycle in the modern agricultural ecosystems? (6)

OR

b. Discuss on different initiatives taken by the GOI towards environmental education programmes for the rural mass. (6)

6. a. In the context of environmental protection, two articles of the Indian constitution have been amended. What are these amendments? (6)

b. What is EIA? What is its relevance? Give an elaborated plan for EIA for any one developing project of your choice. (6)

OR

b. With the help of suitable diagrams, describe different stages of hydrocycle. (6)

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