

Reg. No. :

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S 4909

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Seventh Semester

(Regulation 2004)

Civil Engineering

CE 1021 — ECOLOGICAL ENGINEERING

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define an "Ecosystem".
2. Differentiate population and community.
3. What is bio magnification?
4. Define Liebig's law of minimum.
5. Briefly mention the pyramid of energy in ecological systems.
6. What are "constructed wetlands"?
7. What is an indicator species?
8. Why wetlands are important from ecological point of view?
9. What is a habitat?
10. Define "Ecotone".

PART B — (5 × 16 = 80 marks)

11. (a) What is ecological engineering? Mention some of its broad applications in waste water treatment. (16)

Or

- (b) Describe in detail the structural and functional views in ecosystems taking the example of a pond ecosystem. (16)

12. (a) (i) What is carrying capacity of an ecosystem? (4)
(ii) Explain how resilience and redundancy are related to stability of an ecosystem. (12)

Or

- (b) (i) What are biogeochemical cycles? (4)
(ii) Explain the cycling of nitrogen in the aquatic environment. (12)
13. (a) (i) What are species diversity indices? (4)
(ii) Explain the characteristics of populations. (12)

Or

- (b) (i) What is ecosystem development? (4)
(ii) Explain the process of secondary succession in a abandoned farm land with respect to energy and material cycling (12)
14. (a) Explain in detail the different biological processes involved in the treatment of domestic wastewater. (16)

Or

- (b) (i) What are the benefits of waster water reuse and recycling? (8)
(ii) Explain the processes that take place in the root zone on wastewater loading. (8)
15. (a) What is ecorestoration? Explain the role of step cropping and bio wind screens in watersheds. (16)

Or

- (b). What are the ecological impacts of exploration and extraction industries and how they can be remediated? (16)