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Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020 Energy and Environment

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Interpret World Energy Scenario with respect to production and consumption using relevant statistics. (08 Marks)
- b. Outline the factors that affect India's energy development. (08 Marks)

OR

- 2 a. Explain the various Key energy trends in India. (10 Marks)
- b. Explain the forms of Energy and differentiate energy and power. (06 Marks)

Module-2

- 3 a. List the various thermal energy storage methods. Explain the working principle of solar pond with neat sketch. (08 Marks)
- b. A thermal power plant of 210MW capacity has the maximum load of 160MW. Its annual load factor is 0.6. The coal consumption is 1kg per kWh of Energy generated and the cost of coal is Rs. 450 per tonne. Calculate (i) The annual revenue earned if energy is sold at Rs 1 per kWh and ii) The capacity factor of the plant. (08 Marks)

OR

- 4 a. Define energy audit, explain the need for energy audit and mention the various phases of energy audit methodology. (08 Marks)
- b. A company owns a premium plot. They have to decide which of several alternatives to select in trying to obtain a desirable return on their investment. After much study and calculation, they decide that the two best alternatives are as given in the following table.

	Build solar power plant	Build Hydro power plant
First cost (Rs.)	20,00,000	36,00,000
Annual property taxes (Rs.)	80,000	1,50,000
Annual Income (Rs.)	8,00,000	9,80,000
Life of land (Years)	20	20
Salvage value (Rs.)	0	0

Evaluate the alternative based on the future worth method at $i = 12\%$.

(08 Marks)

Module-3

- 5 a. Explain the following with a neat sketch i) Food chain ii) Food Web iii) Energy pyramid or Ecological pyramid. (06 Marks)
- b. What is an Ecosystem? Explain different types of forest ecosystem. (10 Marks)

OR

- 6 a. Explain grassland ecosystems and its types. (08 Marks)
- b. Write a short notes on : i) Nitrogen cycle ecosystem ii) Oxygen cycle ecosystem iii) Desert ecosystem iv) Aquatic ecosystem. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.



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Module-4

- 7 a. Discuss briefly the causes, effects and control of Air Pollution. (08 Marks)
b. Discuss briefly the causes, effects and control measures of i) Soil pollution (08 Marks)
ii) Noise pollution iii) Thermal pollution iv) Marine pollution.

OR

- 8 a. Discuss Solid waste management techniques. (08 Marks)
b. Discuss any two case studies related to pollution of environment in detail. (08 Marks)

Module-5

- 9 a. What is acid rain? What are its effects and write a short note on Ozone layer depletion. (08 Marks)
b. Discuss : i) Wildlife Protection Act ii) Forest Conservation Act. (08 Marks)

OR

- 10 a. What are the regulations governing Water Pollution Prevention Act? (08 Marks)
b. Explain the impact of global warming on our mother nature. (08 Marks)

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