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18RA751

**Seventh Semester B.Tech. Degree Examination, Dec.2023/Jan.2024**

## Energy and Environment

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Define Energy and Power. Differentiate same. (05 Marks)
- b. Explain the different forms of Energy. (05 Marks)
- c. Interpret World Energy Scenario with respect to production and consumption using latest statistics. (10 Marks)

**OR**

- 2 a. Explain the various key energy trends in India. (10 Marks)
- b. Outline the factors that affect India's Energy development. (10 Marks)

### Module-2

- 3 a. List the various energy storage methods. (04 Marks)
- b. With a neat sketch, explain Solar Pond being sensible energy storage. Draw temperature variation curve. (08 Marks)
- c. Discuss the principles of Energy Management. (08 Marks)

**OR**

- 4 a. Explain in detail, the various phases of Energy Audit. (10 Marks)
- b. It is proposed to supply a load with maximum demand of 500MW and load factor of 70%. Choice is to be made between a nuclear power plant and hydro power plant. Calculate the overall cost per Kwhr in each case. (10 Marks)

Sl. No.	Cost	Hydro – Power Plant	Nuclear – Power Plant
1.	Capital cost per MW installed	Rs 4 crore	Rs 5 crore
2.	Interest	5 %	5 %
3.	Depreciation	4 %	5 %
4.	Operating cost per Kwhr	5 paise	15 paise
5.	Transmission & Distribution cost per Kwhr	3 paise	2 paise

### Module-3

- 5 a. Discuss how carbon is utilized in the ecosystem with the help of simple flow diagram. (08 Marks)
- b. Write a short notes on :
  - i) Coniferous forest      ii) Mangrove forest      iii) Thorne forest.
 Mention the regions in India, where these are found. (12 Marks)

**OR**

- 6 a. Explain : i) Food chain ii) Food web iii) Ecological pyramid. (10 Marks)  
b. Discuss how Oxygen cycle is utilized in ecosystem. (10 Marks)

**Module-4**

- 7 a. Briefly describe the sources, effects and control of water pollution. (10 Marks)  
b. Illustrate the impact of : i) Love Canal Tragedy ii) Bhopal gas tragedy  
iii) Donara Air pollution. Also mention the reasons for these tragic accidents with dates. (10 Marks)

**OR**

- 8 a. Discuss the role of individual in prevention of pollution. Why such an effort at individual level is important. (10 Marks)  
b. Discuss strategy and techniques involved in Solid Waste Management Techniques (SWMT). (10 Marks)

**Module-5**

- 9 a. Explain : i) Climate change ii) Acid rain. (12 Marks)  
b. Explain the needs for Reclaiming the wasteland and its developments. (08 Marks)

**OR**

- 10 a. Discuss and apply the salient features of Wild Life Protection Act 1972. (08 Marks)  
b. Explain the role of Environment Impact Assessment (EIA) in enforcing Environmental Legislation. (06 Marks)  
c. Discuss about Nuclear Holocaust. (06 Marks)

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