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## Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018

**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. Explain briefly world energy scenario with respect to production and consumption using relevant statistics. (08 Marks)
- b. Elaborate the effect of various social and environmental aspects on India's energy development. (08 Marks)

**OR**

- 2 a. Discuss briefly the various key energy trends in India. (12 Marks)
- b. List and explain various forms of energy in a brief manner. (04 Marks)

**Module-2**

- 3 a. List the different types of thermal energy storage systems. Explain any two of them. (08 Marks)
- b. Elaborate the different phases involved in detailed energy audit methodology. (08 Marks)

**OR**

- 4 a. A power plant of 210 MW installed capacity has the following particulars:  
Capital cost = Rs.18000/KW installed  
Interest and depreciation = 12%  
Annual load factor = 60%  
Annual capacity factor = 54%  
Annual running charges = Rs.2 × 10<sup>8</sup>  
Energy consumed by auxiliaries = 6%.  
Calculate the cost of power generation per kWh. (10 Marks)
- b. What are the general characteristics of capital investments? (06 Marks)

**Module-3**

- 5 a. Identify the need for public awareness on environment management. Discuss the effort of important institutions and people in environment management. (10 Marks)
- b. Discuss how carbon is utilized in the ecosystem with the help of a simple flow diagram. (06 Marks)

**OR**

- 6 a. Define ecosystem. Explain the different types of forest ecosystems in India. (10 Marks)
- b. Explain the following terms:  
i) Food chain  
ii) Food web  
iii) Ecological pyramid (06 Marks)

**Module-4**

- 7 a. Explain the main sources and effects of air pollution. (10 Marks)  
b. Discuss the role of an individual in prevention of pollution. (06 Marks)

**OR**

- 8 a. Discuss strategy and techniques involved in solid waste management. (10 Marks)  
b. Illustrate a case study related to environmental pollution in detail. (06 Marks)

**Module-5**

- 9 a. Write a short note on Global warming. (06 Marks)  
b. What is the need for wasteland reclamation? Explain the methods for reclaiming wasteland. (10 Marks)

**OR**

- 10 a. What are the objectives of Water (prevention and control of pollution) Act? Explain its salient features and penalties for violation. (10 Marks)  
b. Explain the role of environment impact Assessment (EIA) in Enforcing Environmental Legislation. (06 Marks)

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