

Non Conventional Energy Sources

Time : 3 Hours

Min. Passing Marks : 24

Maximum Marks : 80

Instruction to Candidates :

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)

< Unit-I >

- (a) Explain in brief the Conventional and Non-conventional sources of energy. [8]
- (b) Write a short-note on energy-management system. [8]

OR

- What are the advantages and limitations of renewable energy sources? Write a note on "Energy crisis in India". [16]

< Unit-II >

- (a) Explain the construction and operation of Solar Water Heating System. [8]
- (b) Explain the construction and functions of main components of flat-plate solar collector. [8]

OR

- (a) Write the working principle and operation of solar-cells (photovoltaic-converter). [8]
- (b) Explain in brief the different methods of measurement of solar radiation. [8]

< Unit-III >

- (a) What are the main considerations in selecting a site for wind generators? [8]
- (b) Explain the design and working of wind generators. [8]

OR

- (a) What is Geo-thermal energy? Explain the scheme of vapour dominated power-plant. [8]
- (b) What are advantages and problems of Geo-thermal energy? [8]

< Unit-IV >

- (a) What are the factors to be considered in selecting the site of a nuclear power station? [8]
- (b) Explain with a neat sketch the working of a nuclear power station. [8]

OR

- (a) What is meant by nuclear fission and chain reaction? [8]
- (b) Discuss the advantages and disadvantages of a nuclear plant as compared to other conventional power systems. [8]

< Unit-V >

- (a) Explain the constructional detail and working of floating gas holder digester. [8]
- (b) What are the advantages and limitations of Biological conversion of solar energy? [8]

OR

- What are the factors which affect the size of the biogas plant? Explain the construction and operation of Deen-bandhu Bio-gas plant. [16]