8E4112

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B.Tech. VIII Semester (Main/Back) Examination - 2013

Electrical Engineering

8EE4 Non Conventional Energy Sources

Time : 3 Hours **Maximum Marks : 80**

Min. Passing Marks : 24

Instructions 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

1. a) What are advantages and disadvantages of use of Renewable Energy Sources? **(6)**

   b) What is present status of use of Renewable Energy Sources in India? What are advantages of use of Solar Energy & Bio Energy in India. **(10)**

OR

1. a) What is present energy use scenario in India? **(6)**

   b) What are different components of Tidal Power Plants? What are advantages and limitations of tidal power generation? **(10)**

Unit - II

2. a) How solar radiation on tilted surface can be calculated? Discuss mathematical expression used for the same. **(6)**

   b) What do you mean by concentrating collector? Discuss configuration of parabolidal & heliostat collector. **(10)**

OR

2. a) Discuss different components of basic solar power plant? What are its advantages over conventional power generation. **(6)**

   b) What do you mean by Solar cell? How they are formed? Discuss present state of art of technology of solar PV in India and configuration of solar cell array. **(10)**

Unit - III

3. a) What is maximum efficiency of conversion of wind machine? Discuss its principle of conversion. **(6)**

   b) How geothermal power can be estimated? Discuss principle & working of different component of basic geothermal steam power plant. **(10)**

OR

3. a) Discuss working of different basic electrical generation scheme of wind machine. **(6)**

   b) Discuss different configuration of binary fluid geothermal power plant and geothermal preheat hybrid power plant. **(10)**

Unit - IV

4. a) What are different requirement for nuclear fission and nuclear fusion? **(6)**

   b) Describe various methods of magnetic confinement and Inertial confinement? Discuss advantages of nuclear fusion. **(10)**

OR

4. a) Explain Tokamak reactor, Laser fusion reactor with their components. **(6)**

   b) Explain working of Fusion hybrid and cold fusion with neat sketch. **(10)**

Unit - V

5. a) What are different biomass conversion route for energy? Draw a flow chart of this conversion. **(6)**

   b) What do you mean by Pyrolysis? Discuss working of most efficient pyrolysis unit available in India. **(10)**

OR

5. a) How biogas can be produced. Discuss its application and mechanism involved for generation. **(6)**

   b) Draw a neat sketch of Deenbandhu Biogas plant and explain its working with different components. **(10)**

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