

8E4112

Roll No. : _____

Total Printed Pages : **3****8E4112**

B. Tech. (Sem. VIII) (Main/Back) Examination, April/May 2012

Electrical Engg.

8EE4 Non Conventional Energy Sources

Time : 3 Hours]

[Total Marks : **80**[Min. Passing Marks : **24***Attempt any **five** questions.**Selecting **one** question form **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.**Unit of quantities used/calculated must be stated clearly.*Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. _____ Nil 2. _____ Nil

UNIT - I

1 (a) On the basis of environment and economical aspects, justify the potential and use of non conventional energy sources in power generation in Indian context.

8

(b) What are the reasons of tide and how it can be used for power production ? Draw the layout of a tidal power plant and name its various components (No description).

8

OR

1 (a) What are the three important renewable energy sources used to produce power in India ? Compare them with conventional gaseous based power source.

8

(b) What are the limitations in use of nuclear, tidal and hydro power plants ? What are their present status in India ?

8

8E4112I



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UNIT - II

- 2 (a) Define : Extra terrestrial radiations, solar constant, depiction of solar radiation in the earth's atmosphere and energy emitted by sun. 8
- (b) What are the different types of solar collectors used in power production ? Explain with neat sketch the working of a tracking type solar concentrator. 8

OR

- 2 (a) Describe with neat sketch the working of solar water heating system with back up support used in a hostel. 8
- (b) Name three various techniques used for power generation from solar energy. Explain their limitations. 8

UNIT - III

- 3 (a) How geothermal energy can be harnessed ? Describe with neat sketch the working of a geothermal based power plant. 8
- (b) How wind machines are classified ? Explain the conditions and criterion for selection of site for wind farm and the type of wind machine. 8

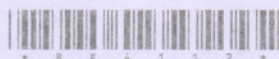
OR

- 3 (a) Describe with neat sketch working of a preheat hybrid geothermal power plant. What are its merits and demerits ? 8
- (b) Explain the factors on which the wind current depends. How wind blows in coastal areas ? How the wind power is calculated ? 8

UNIT - IV

- 4 (a) Explain the nuclear fission. What are the necessary requirements for nuclear fusion ? 8
- (b) Explain with a neat sketch the working of a basic Tokamak reactor. What are the safety devices used in this reactor ? 8

OR



- 4 (a) What are the merits and demerits of laser fusion reactor ? Describe the advantages of nuclear fusion. 8
- (b) Describe : Plasma confinement, magnetic confinement, inertial confinement and cold fusion. 8

UNIT - V

- 5 (a) Enumerate the different methods of conversion of plant waste biomass into useful form of energy. Name the equipment used in each case. 8
- (b) What are the different technologies for the production of liquid fuels from crop wastes and wild plants ? How these fuels are used for power generation ? 8

OR

- 5 (a) How cattle wastes can be used to produce gaseous fuel ? Describe with neat sketch the working of a fixed dome biogas plant. List its merits. 8
- (b) How liquid bio-fuel are used in running I.C: Engines in India ? Explain with neat sketch one method of ethanol production. What is its scope in India ? 8

OR

- (a) What are the three important renewable energy sources used to produce power in India ? Explain one of them with neat sketch.

