

7E7044

Roll No. 14EE 8EE060

Total No of Pages: 3

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B. Tech. VII Sem. (Main/Back) Exam., Nov. – Dec. - 2017
Electrical & Electronics Engineering
7EX4A Non Conventional Energy Sources
EE, EX

Time: 3 Hours

Maximum Marks: 80
Min. Passing Marks: 26

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.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL

2. NIL

UNIT-I

Q.1 (a) List the various non conventional energy resources. Give their availability, relative merits and demerits in Indian context. [12]

(b) What are the limitations of Tidal energy? [4]

OR

Q.1 (a) Explain double basin arrangement in Tidal power plant. [8]

(b) Describe briefly the advantages of non conventional energy resources over conventional energy resources. [8]

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[8980]

UNIT-II

- Q.2 (a) What are the advantages and disadvantages of concentrating collectors over flat plate collectors? [8]
- (b) Draw and explain the schematic diagram of basic solar power plant. Also write the applications of solar photovoltaic system. [5+3=8]

OR

- Q.2 (a) Define beam, diffuse and global radiation? Derive an expression for total radiation on tilted surface. [10]
- (b) Describe non convective solar pond for solar energy collection and storage. [6]

UNIT-III

- Q.3 (a) Explain Wind Energy Conversion System (WECS). What are the basic components of a WECS? [8]
- (b) What do you understand by geothermal energy? What are geothermal fields? [8]

OR

- Q.3 (a) Explain the working of Binary fluid power plant. [8]
- (b) Describe the main consideration in selecting a site for wind generators. [8]

UNIT-IV

- Q.4 (a) Explain in detail the working of a Laser Fusion Reactor. [8]
- (b) What are the various requirements for a nuclear fusion process to take place? [8]

OR

- Q.4 (a) Explain the following terms in reference of nuclear fusion energy:
- (i) Magnetic heating [2]
 - (ii) Pellet fusion reactor [2]
 - (iii) Plasma heating [2]
 - (iv) Beam fusion [2]
- (b) Explain the fusion hybrid and cold fusion. [8]

UNIT-V

Q.5 (a) What is the origin of biomass energy? What is the present status of development of biomass energy resources in India? [8]

(b) Explain the operation of biogas plant (any one): [8]

(i) Deen bandhu biogas plant

(ii) Pragati design biogas plant

OR

Q.5 (a) Explain the factors that affect fuel generation of biogas. [8]

(b) Explain the process of ethanol production from cassava. What are the uses of ethanol in power sector? [8]