7E7044

Roll No.

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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]

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 titled 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]
