Code: 13A03605 **R13**

B.Tech III Year II Semester (R13) Regular & Supplementary Examinations May/June 2017

NON CONVENTIONAL SOURCES OF ENERGY

(Mechanical Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) List three non – conventional electrical energy sources in India.
(b) State the different forms of energy.
(c) Define Collector efficiency.
(d) Mention any two applications of solar energy.
(e) List the instruments used for measuring solar radiation.
(f) State the type of generator used in wind power plant.
(g) State the constituents of biogas.
(h) Classify the geothermal sources.
(i) State the factors governing tidal range.
(j) Mention the basic theory of electrochemistry applied to fuel cell.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Discuss energy requirement of rural consumers and state the possible alternative source of energy to meet the demand.

OR

3 Explain the terrestrial solar radiation with neat sketch.

UNIT – II

4 (a) "Orientation is needed in concentrating type collectors" – Justify.
(b) Discuss a method for solar collector performance testing.

OR

5 With the help of a neat sketch, describe a solar heating system using water heating solar collectors and state the advantages and disadvantages of this method.

UNIT – III

6 Explain the advantages and disadvantages at photovoltaic solar energy conversion.

OR

7 Describe the main considerations in selecting a site for wind generators.

UNIT – IV

8 Explain the operation of IC engine working on biogas.

OR

9 Explain the constructional details and working of KVIC digester.

UNIT – V

10 Explain with a schematic diagram the open cycle OTEC.

OR

11 Explain the principle of MHD power generation.

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