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Code No: 136SV

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, February/March - 2022
NON-CONVENTIONAL POWER GENERATION
(Mechanical Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1.a) What is flat plate collector? Explain its operation.
b) Summarize the advantages and disadvantages of concentrating collectors over a flat plate collector? [8+7]

2.a) Tabulate the different methods of sun tracking. And explain any one method.
b) Demonstrate about solar ponds. [8+7]

3.a) Demonstrate the disadvantages of PV solar energy conversion system.
b) Explain the constructional details of solar modules. [6+9]

4.a) Explain the working of solar cell with neat diagram.
b) Analyze about PV effect and state the advantage and disadvantage of PV Solar Energy. [9+6]

5.a) Define torque coefficient (C_T), blade tip speed ratio (λ) and power coefficient (C_p) Establish the relation between them.
b) Discuss the advantages and disadvantages of wind power generation over convectional systems. [7+8]

6.a) Explain the construction and working principle of Horizontal axis wind turbine.
b) Tabulate the main applications of wind energy. [9+6]

7. Discuss the different technologies used to produce the biogas. What are the factors effecting its production? [15]

8.a) Describe the method used to convert ocean thermal energy into power, with the help of Schematic diagram, based on steam cycle.
b) What are the limitations of single basin tidal plant? How are those overcome in a modulated single basin system and double basin system? [8+7]

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