Code No: R1631022 **R16** SET - 1

III B. Tech I Semester Supplementary Examinations, October/November - 2020

RENEWABLE ENERGY SOURCES

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A (14 Marks)

1. a) Explain briefly about the conventional Energy Sources and un–conventional energy Sources. [2M]
   b) Explain in brief about thermal energy storage system. [2M]
   c) What is doping? Describe the intrinsic and extrinsic semiconductor used for making the PV Cell. [2M]
   d) Distinguish between Local winds and Global winds. [3M]
   e) Distinguish between large, small and Micro hydro systems. [3M]
   f) List the materials used for biogas generation. [2M]

PART –B (56 Marks)

2. a) Explain in detail about the beam and Diffuse Solar radiation. [7M]
   b) Calculate the sunset hour angle and day length at location latitude of 35^0 N, on February 15. [7M]

3. a) Enumerate and explain the different types of Concentrating type Collectors. [7M]
   b) Explain a non–convective Solar pond for Solar energy collection and storage with a neat sketch. [7M]

4. a) What are the different materials used for fabrication of Solar cells and give their significance and relative advantages. [7M]
   b) Explain the effect of following parameters on the short circuit current, open circuit voltage and power generated by PV Cell: i)Radiation intensity, ii)Temperature. [7M]

5. a) Explain the power extracted (momentum theory) by the wind turbine. [7M]
   b) A wind turbine with 12 m diameter span has cut in speed of 6 m/s, at which it develops 3.5 KW. Find the i)Efficiency of turbine, ii)Axial Force, iii)Find the effect of wind velocity if it is 20 m/s, on wind turbine power and axial force. Assume Density of air as 1.25 Kg/m^3. [7M]

6. a) Explain how Electric power is generated from Hydro Resource? [7M]
   b) Explain the following terms: [7M]
   i)Tidal movement ii) tidal current iii)Spring tide and iv)Neap tide.

7. Write short notes on the following: [14M]
   i) Pyrolysis ii) Fuel Cell.

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