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

III B. Tech I Semester Supplementary Examinations, August - 2021

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) What are the prospects of non-conventional energy sources in India? [2M]
b) Explain the principle of conversion of Solar energy in to heat. [2M]
c) Distinguish between a Solar Cell, PV Module and a PV Array. [3M]
d) Explain how the winds are originated? [2M]
e) Explain about progressive Ocean Wave. [3M]
f) Distinguish between a Biomass and Biogas. [2M]

PART –B **(56 Marks)**

2. a) Explain the following with respect to Solar radiation Geometry: [6M]
i) Solar Altitude; ii) Zenith angle; iii) Solar Azimuth angle.
b) What is the significance of Solar radiation data and in how many forms is this data available? [8M]

3. a) List the advantages and disadvantages of concentrating collectors over Flat–plate collectors. [7M]
b) A cylindrical parabolic concentrator is 10 m long and 2.5 m wide. The diameter of absorber tube is 12 cm. Find the concentration ratio. [7M]

4. a) Draw and explain the equivalent circuit of PV Cell and explain the significance of each parameter. [7M]
b) List the advantages and disadvantages of a PV System. [7M]

5. a) Explain the factors considered for selecting a site of a wind generator. [7M]
b) Compare between horizontal and vertical axis wind mills. [7M]

6. a) How do you classify small Hydro power plants and explain them in brief? [7M]
b) Find the frequency and time period of Wave energy for Power density of 1000 W/m^2 and mean wave height of 3 m. [7M]

7. a) List the advantages and disadvantages of Geothermal Energy over other Energy forms. [7M]
b) Explain the main components of Fuel cell system. [7M]

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