Code No: R163203D **R16** SET - 1

III B. Tech II Semester Supplementary Examinations, November - 2019

GREEN ENGINEERING SYSTEMS

(Common to Mechanical Engineering, Automobile 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) Define solar constant. [2M]
   b) Give the disadvantage of wind energy conversion system. [2M]
   c) Give classification of geothermal energy resources. [2M]
   d) Mention the factors which affect the size of biomass plant. [3M]
   e) Write the principle of fuel cell. [3M]
   f) What are green buildings? [2M]

PART –B **(56 Marks)**

2. a) With a neat diagram explain any two instruments used for measuring solar radiation. [7M]
   b) Enumerate the different types of concentrating type collectors. [7M]

3. a) Explain the working of horizontal axis wind mill. Write its advantages and disadvantages. [7M]
   b) Explain how stable density gradient is maintained in a solar pond? [7M]

4. a) Give the classification of Biomass plants? Explain them briefly. [7M]
   b) Explain the working of OTEC plant with the help of neat schematic diagram. [7M]

5. a) Explain the energy efficient lightning control methods. [7M]
   b) Explain why variable torque loads offer great energy savings? [7M]

6. a) Explain the classification of fuel cells based on the type of electrolyte. [7M]
   b) List the benefits of green manufacturing systems over current systems. [7M]

7. a) Discuss the various waste management principles used in green buildings. [7M]
   b) Explain the significance of solar power in green buildings. [7M]

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