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Exam. Code: 0943

Sub. Code: 7070

1128

**B.E. (Mechanical Engineering)**

**Seventh Semester**

**Elective – I**

**MEC-705 (c): Renewable Energy Sources**

**Time allowed: 3 Hours**

**Max. Marks: 50**

*NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

*x-x-x*

- I. Attempt the following:-
- a) Define diffused and global radiation.
  - b) Define the term "Concentration Ratio".
  - c) State two factors affecting bio-digestion.
  - d) List the difference between renewable and non-renewable energy sources.
  - e) State the principle of solar desalination. (5x2)

**UNIT – I**

- II. a) Explain the significance of energy consumption as a measure of prosperity of a nation.
- b) Describe the principle of Angstrom pyrheliometer. (5,5)
- III. a) Discuss the advantages and disadvantages of concentrated collector over non-concentrating collector.
- b) Discuss the application of solar energy for space heating application. (5,5)
- IV. a) Explain the following as applied to biomass conversion
- i) Thermochemical conversion
  - ii) Anaerobic digestion
  - iii) Fermentation
- b) With the aid of diagram, explain the working of working of two stage continuous type biogas plant. (5,5)

P.T.O.



(2)

UNIT - II

- V. a) Explain the basic principle and components of a Wind Energy Conversion System.
- b) Write down the main considerations for the choice of site for wind energy generation. (5,5)
- VI. a) Describe the working of downdraft type of gasifier.
- b) With a suitable diagram, explain the working of open cycle OTEC for ocean thermal energy. (5,5)
- VII. a) Explain the working of single basin tidal power plant.
- b) Explain the geo thermal resources. How the electric power can be developed from geothermal resources? (5,5)

x-x-x