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Printed Pages : 3

TME-023

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0485

Roll No.

B. Tech.

(SEM. VIII) EXAMINATION, 2007-08

**NON-CONVENTIONAL ENERGY
RESOURCESS & UTILIZATION**

Time : 3 Hours]

[Total Marks : 100

- Notes :
- (1) Attempt all questions.
 - (2) All questions carry **equal** marks.
 - (3) Be precise in your answer.
 - (4) No second answer book will be provided

1 Attempt any **two** parts of the following: **10×2=20**

- (a) What are the Conventional and Non-Conventional energy sources? Describe the fossil fuel as a conventional energy source.
- (b) What is meant by renewable energy sources? Explain in brief these energy sources with special reference to Indian Context.
- (c) Define Solar Constant. What are the reasons for variation in Solar Radiation reacting earth than received at the outside of the atmosphere?

2 Attempt any **four** part of the following: **5×4=20**

- (a) How solar air collector are classified?
- (b) What are the main components of a flat plate solar collector. Explain?

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- (c) Why orientation is needed in concentrating type collectors?
- (d) What is the heat extraction method in a solar pond? Describe.
- (e) Describe a solar water heating system
- (f) What do you understand by Solar Pumping? Describe.

3 Attempt any **four** parts of the following: **5×4=20**

- (a) What is the difference between biomass and biogas?
- (b) What is meant by anaerobic digestion? What are the factors which affect biodigestion?
- (c) Name the various models of biogas plants.
- (d) Describe the main considerations in selecting a site for wind generators.
- (e) Discuss the aerodynamic consideration in wind mill design.
- (f) Describe the working of wind energy conversion system (WECS) with main components.

4 Attempt any **two** parts of the following: **10×2=20**

- (a) What are the different types of fuel cell? List the fuels mostly used in fuel cells. Describe a Ion exchange membrane cell.
- (b) What do you mean by thermionic emission and work function of a metal? Describe a thermionic generator.
- (c) How the energy can be obtained from the tides of the sea? Describe a operation method of utilization of Tidal energy.

5 Attempt any **two** parts of the following: **10×2=20**

- (a) What are the different types of semiconductor used in thermo electric power generation? What are the criteria for the selection of these materials? Describe a thermo electric generator.
- (b) What are the different types of geothermal sources? Describe a vapour dominated hydrothermal type geothermal power plant.
- (c) What is the basic principle of ocean thermal energy conversion (OTEC)? What are the main types of OTEC power plant? Describe a closed cycle OTEC system.