

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

PAPER ID : 2532

Roll No.

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**B.Tech.**

(SEM. VI) THEORY EXAMINATION 2010-11

**NON-CONVENTIONAL ENERGY RESOURCES &  
UTILIZATION**

Time : 2 Hours

Total Marks : 50

- Note :** (i) Attempt **all** questions.  
(ii) All questions carry equal marks.  
(iii) Be precise in your answer.

1. Answer any **two** of the following : **(5×2=10)**
- (a) What do you mean by renewable energy sources ? Explain in brief these energy sources in Indian context.
- (b) Explain the following angles used in solar radiation analysis.
- (i) Latitude of location  
(ii) Hour angle  
(iii) Solar Azimuth angle  
(iv) Zenith angle  
(v) Declination angle.
- (c) (i) Discuss decentralised & dispersed generation.  
(ii) Explain local apparent time. How it is calculated ?
2. Answer any **two** of the following : **(5×2=10)**
- (a) Enumerate different types of concentrating solar collector.
- (b) Describe the working of a solar power plant.
- (c) What is the principle of solar photovoltaic power generation ? Describe in brief main elements of PV system.

3. Answer any **two** of the following : (5×2=10)

- (a) How does biomass conversion take place ? Name various models of biogas plant & describe any one of them.
- (b) What are the criteria for site selection of a wind mill farm ? Discuss advantages of vertical axis wind mill over horizontal type.
- (c) Write short notes on :
  - (i) Wind energy storage.
  - (ii) Dome type biogas plant.

4. Answer any **two** of the following : (5×2=10)

- (a) Explain the basic principle of fuel cell with reference to  $H_2-O_2$  fuel cell. What are advantages of fuel cell power sources ?
- (b) Explain the working of single basin & double basin tidal system.
- (c) Briefly describe different methods for hydrogen production. What are the problems with hydrogen as fuel ?

5. Answer any **two** of the following : (5×2=10)

- (a) Write a note on "Utilization of Geothermal Resources in India". What are the merits & demerits of geothermal energy.
- (b) What are the main types of OTEC power plants. Describe the working of anyone type in brief.
- (c) Explain Kyoto Protocol agreement for reduction of greenhouse gases.