



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

PAPER ID : 140655

Roll No.

1	2	0	3	2	4	0	1	2	6
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B. Tech.

(SEM. VI) THEORY EXAMINATION, 2014-15
**NON-CONVENTIONAL ENERGY RESOURCES &
UTILIZATION**

Time : 2 Hours]

[Total Marks : 50

Note : Each question carries **equal** marks.

- 1 Attempt any **two** questions : **5×2=10**
- a) Discuss the primary and secondary energy sources also describe the future of non-conventional energy sources in India.
 - b) Discuss in details about reserve and production of petroleum and natural gas in India with problems areas.
 - c) Explain "Latitude", "Declination angle" and "Surface azimuth angle".
- 2 Attempt any **two** questions : **5×2=10**
- a) Enumerate the different type of concentrating type collectors.
 - b) Explain basic Rankine cycle. Distinguish between low temperature and high temperature Rankine cycle.

- c) A certain solar cell type has an output capacity of 0.5 Amp and 0.4 Volt. A series/parallel solar array has been designed of such with 100 parallel strings and each string has 300 cell in series. Calculate
- Voltage capacity
 - Current capacity
 - Power output capacity of array.

3 Attempt any **two** questions : **5×2=10**

- Explain the process of photosynthesis. What are the conditions which are necessary for it.
- Discuss various designs of rotors with their merits and demerits.
- Derive the expression for total power of wind stream.

4 Attempt any **two** questions : **5×2=10**

- Discuss hydrogen-oxygen fuel cell. Show that hydrogen oxygen fuel cell has the maximum efficiency of 83%.
- Explain the closed cycle system of OTEC plant.
- Write short notes on "Safety precautions of hydrogen as fuel."

5 Attempt any **two** questions : **5×2=10**

- Explain the following :
 - Seeback Effect
 - Peltier effect
 - Thomson effect.
- What is wave energy ? How can it be tapped ? Describe a few wave conversion devices.
- Explain the working of geothermal power plants. Discuss nature and characteristics of Indian geothermal reservoir.