

**B.TECH.****THEORY EXAMINATION (SEM–VI) 2016-17****NON CONVENTIONAL ENERGY RESOURCES & UTILIZATION****Time : 3 Hours****Max. Marks : 100****Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.****SECTION – A****1. Explain the following:****10 x 2 = 20**

- (a) What is meant by non conventional energy resources?
- (b) What are the basic principles of wind energy conversion?
- (c) List various non conventional energy resources.
- (d) Discuss the working of solar power plant.
- (e) Explain the principal of conversion of solar energy into heat.
- (f) What is fuel cell?
- (g) Write the principle of magneto hydro power generation.
- (h) What is meant by solar pond?
- (i) Describe an open cycle fossil fuelled MHD system.
- (j) Classify various energy storage systems.

**SECTION – B****2. Attempt any five of the following questions:****5 x 10 = 50**

- (a) How are bio-gas plants classified? Explain them briefly giving their advantages, disadvantages & applications.
- (b) Explain the principal of conversion of solar energy into heat, with the help of neat sketch.
- (c) What do you understand by nature of the wind? Describe the factors that affect the nature of wind?
- (d) Discuss the technology of Ocean Thermal Energy Conversion (OTEC). What are the environmental effects of OTEC.
- (e) What do you understand by seebeck thermoelectric effect? How does a seebeck coefficient vary with temperature?
- (f) Describe the construction and working of any one type of wave energy conversion machine.
- (g) Describe Solar Absorption Refrigeration System for space cooling.
- (h) Classify solar thermal energy storage.

**SECTION – C****Attempt any two of the following questions:****2 x 15 = 30**

**3** With the help of a neat diagram explain the following in respect of solar radiation analysis.

- (i) Solar Azimuth angle
- (ii) Altitude angle
- (iii) Zenith angle

**4** Describe the primary & secondary Energy Resources. Also describe the future of NCER in India.

**5 Write short note on:**

- (i) Limitations of tidal energy conversion system.
- (ii) Safety precaution of hydrogen as fuel.