

B TECH
SIXTH SEMESTER EXAMINATION 2015-2016
EMED21
NON-CONVENTIONAL ENERGY RESOURCES AND UTILIZATION
 Max. Marks: 50

Time: 2 Hours
 (Note)

- Attempt all questions.
- All questions are equal marks.

1. Attempt any three parts from the followings. [4X3]
 a. Discuss renewable and conventional forms of energy. Highlight their merits and demerits.
 b. Discuss the technical and social problems associated with hydropower plants.
 c. What is biomass? Discuss the method of power generation from liquid waste.
 d. A compound parabolic collector installed in Itarsi (18.53°N) operates without tracking and collects solar radiation from 8 hours on May 2. Calculate the minimum acceptance angle needed for the collector.
 e. What is green house and how is carbon dioxide level is maintained in it?

2. Attempt any two parts from the followings. [6X2]
 a. Discuss various methods of estimating the wind energy potential. Evaluate the selection of optimum wind energy generation (WEG).
 b. What do you understand by geothermal fields? Discuss the indirect utilization of geothermal energy.
 c. Compare the sequential operation modes of a single – effect tidal scheme with those of the double – effect tidal scheme.

3. Write short notes on any two from the followings. [5X2]
 a. Solar cells.
 b. Bio-diesel – its production and uses.
 c. Working principle of OTEC

4. Attempt any two parts from the followings. [8X2]
 a. What do you mean by biogas? Write a note on producer gas and liquid fuel.
 b. Describe in brief with the help of neat diagram the working and constructional features of a hydrogen oxygen fuel cell. Derive the expression for a power output and efficiency of a fuel cell.
 c. Explain the difference between the active and passive solar heating system. With the help of schematic diagram explain the "Tumble and passive solar heating system".