

Code: 13A02804

B.Tech IV Year II Semester (R13) Advanced Supplementary Examinations July 2018

ENERGY RESOURCES & TECHNOLOGY

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

1 Answer the following: (10 X 02 = 20 Marks)

- Mention the different types of renewable energy resources.
- Why evaluation of energy and mass balance is important?
- State any one material for moderator and control rod used in nuclear reactor.
- List any three merits and demerits of Hydro power plant.
- Define solar constant.
- Write the merits and demerits of three blade rotor over two blade rotors.
- Show that wave velocity does not depend on the amplitude of the wave.
- Differentiate between dry, wet and hot water geothermal systems.
- Name the different hydrogen storage methods.
- Differentiate battery from fuel cell.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- Write about the energy consumption pattern and growth rate in India.
 - Explain why it is necessary to develop non conventional method of generating electrical energy.

OR

- Describe the various power generating methods used in India and compare them with their operational cost and efficiency.

UNIT – II

- Draw the general layout of high head hydro electric power plant and explain the function of any three components.

OR

- Draw labeled schematic block diagram of thermal power plant showing all the systems.
 - What problems are faced by the environment if electrostatic precipitator in steam power plant is not working properly?

UNIT – III

- Discuss in detail about solar thermal power plants.
 - With relevant diagrams, demonstrate various types of solar collectors.

OR

- Explain the system safety and environmental aspects of WECS.
 - Classify the various types of wind turbine.

UNIT – IV

- With neat diagrammatic representation, explain the operation of a hybrid cycle ocean thermal energy conversion. Also delineate the importance of various components used in the system and list some merits over other OTEC systems.

OR

- Brief about the operational and environmental problems of geothermal process.
 - List some of the geothermal occurrence in India.

UNIT – V

- Explain the construction and working principle of fuel cell with neat sketch. What are the advantages and disadvantages of fuel cell?

OR

- Transportation is one of the main energy consuming sector. Elaborate the various fuels used and the future energy sources for that sector.