

B.Tech IV Year II Semester (R15) Regular Examinations April 2019

ENERGY RESOURCES & TECHNOLOGY

(Electrical & Electronics Engineering)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) What are the conventional energy sources?
 - (b) Write short note on energy economics.
 - (c) What are the main components of nuclear power generation plant?
 - (d) What are the main types of hydroelectric power plant arrangements?
 - (e) Classify wind energy conversion systems based on any two parameters.
 - (f) Enumerate the different main applications of solar energy.
 - (g) What are the advantages of wave energy conversion?
 - (h) Classify geothermal sources.
 - (i) What are the important factors to be considered while selecting materials for an MHD generator?
 - (j) Write short notes on energy transportation.

PART – B

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

UNIT – I

- 2 Explain the complete cycle analysis of coal.

OR

- 3 Explain the fundamentals of energy and also discuss the quality of energy.

UNIT – II

- 4 Explain about the thermal power plant with a neat sketch.

OR

- 5 Explain the effects of conventional power sources on the environment.

UNIT – III

- 6 What are the main components of a flat plate solar collector, explain the function of each?

OR

- 7 Prove that in case of horizontal axis wind turbine maximum power can be obtained when:

$$\text{Tip velocity} = \frac{1}{3} \text{ wind velocity and } P_{\max} = \frac{8}{27} \rho A V^3.$$

UNIT – IV

- 8 Explain the constructional detail and working of KVIC digester.

OR

- 9 Derive the expression for estimation of energy and power in simple single basin tidal system.

UNIT – V

- 10 Describe an MHD open cycle system with a neat schematic diagram.

OR

- 11 Explain in detail about latent heat energy storage system with its advantages.
