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10ME53

Fifth Semester B.E. Degree Examination, June/July 2017
Energy Engineering

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART - A

- 1 a. Explain the principle of overfeed and underfeed stokers, with neat sketches. (10 Marks)
b. Explain a typical hydraulic ash handling system, with neat sketch. (06 Marks)
c. List the advantages and disadvantages of pulverized fuel. (04 Marks)
- 2 a. With a neat diagram, explain the working principle of Benson Boiler. (08 Marks)
b. Mention the various types of draught systems used at Chimneys and explain them with neat sketch. (12 Marks)
- 3 a. With the help of simple sketch, explain the working of Diesel Engine Power plant. (10 Marks)
b. Name the various starting methods used for diesel engines and explain them. (10 Marks)
- 4 a. Draw a typical layout of hydroelectric power plant and explain its working principle. (08 Marks)
b. What is a hydrograph? Write its uses. (04 Marks)
c. List the different types of surge tanks and explain them in brief. (08 Marks)

PART - B

- 5 a. Compare Fission and Fusion processes. (04 Marks)
b. With a neat sketch, explain working principle of Boiling Water Reactor (BWR) and mention its merits and demerits. (10 Marks)
c. Describe the Radioactive wastes disposal methods. (06 Marks)
- 6 a. Name Solar Radiation measuring instruments and explain any one with neat sketch. (10 Marks)
b. Wind blows with velocity of 16 m/s and at 15⁰C. Assume 'One' standard atmospheric pressure. If the turbine diameter is 115m and operating at 40 RPM at maximum efficiency. Calculate axial thrust and torque at maximum efficiency. Assume propeller type wind turbine. (10 Marks)
- 7 a. With a neat diagram, explain the working principle of Rankine Cycle – OTEC power plant. (10 Marks)
b. Name the different Hydro Thermal convective system and explain any one system, with a neat sketch. (10 Marks)
- 8 a. Explain the difference between biomass and biogas. (03 Marks)
b. Describe the factors affecting biogas production. (05 Marks)
c. With a neat sketch, explain the construction and working of KVIC digester. (12 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.