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Fifth Semester B.E. Degree Examination, June / July 2014
Energy Engineering

Time: 3 hrs.

Max. Marks:100

**Note: 1. Answer any FIVE full questions, selecting
atleast TWO questions from each part.
2. Assume missing data, if any, suitably.**

PART - A

- 1 a. With a neat sketch, explain the working of spreader stoker. State the limitations of it. (10 Marks)
- b. Draw a line diagram of Pneumatic ash handling system and explain its working. Mention its advantages. (10 Marks)
- 2 a. What are the advantages and disadvantages of high pressure boilers? With a neat sketch, explain the working of Benson boiler. (10 Marks)
- b. What is draught? Mention types of draught and explain any one type, with neat sketch. (10 Marks)
- 3 a. Draw a line diagram to show the layout of diesel power plant. Describe it in brief. (10 Marks)
- b. State the applications of diesel engines in power fluid. List the advantages and disadvantages of diesel power plant. (10 Marks)
- 4 a. How are the hydro – electric power plant classified? With a neat sketch, explain the pumped storage plant. (10 Marks)
- b. At a particular site, the mean monthly discharges (in millions of m³) of a river in 12 months from January to December are 30, 25, 20, 0, 10, 50, 80, 100, 110, 65, 45 and 30 respectively. Draw the hydrograph and flow duration curve and find mean flow. Also find the power available at mean flow. If the head available is 90m and the overall efficiency of generation is 85%. Assume each month of 30 days. (10 Marks)

PART - B

- 5 a. Draw a schematic diagram of a PWR, label all the parts. State the function of each component. (10 Marks)
- b. Explain the following : i) Reactor shielding ii) Radio active waste disposal. (10 Marks)
- 6 a. With a neat sketch, explain the working of an instrument used to measure global radiation of solar energy. (10 Marks)
- b. With a neat sketch, explain solar pond electric power plant. Mention applications of solar pond. (10 Marks)
- 7 a. Explain the principle of working of OTEC. Explain with a neat sketch, Rankine cycle OTEC plant. (10 Marks)
- b. i) What are the factors considered for selecting a suitable site for tidal power plant? (05 Marks)
- ii) With a neat sketch, explain the working of “Hot dry rock” geothermal plant. (05 Marks)
- 8 a. What is meant by anaerobic digestion? What are the factors which affect bio-digestion? Explain in brief. (10 Marks)
- b. How are gasifiers classified? With a schematic diagram, explain the working of down draft gasifier. (10 Marks)
