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Fifth Semester B.E. Degree Examination, Dec.2016/Jan.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 Cyclone burner, along with proper sketch. (06 Marks)
 - b. Explain various coal handling techniques. (08 Marks)
 - c. Prepare a neat sketch for hydraulic ash handling system and explain. (06 Marks)
- 2
 - a. Give a neat sketch for Benson boiler and write the operating principle. (08 Marks)
 - b. Explain briefly about i) Economiser ii) Air preheater. (06 Marks)
 - c. Derive an expression for chimney height. (06 Marks)
- 3
 - a. Write the advantages and disadvantages of diesel power plant. (06 Marks)
 - b. Explain with neat sketch, Individual pump injection system and common rail injection system in diesel power plant. (08 Marks)
 - c. What is meant by thermostat cooling in diesel power plants? (06 Marks)
- 4
 - a. Give a brief note on i) Hydrograph ii) Flow duration curve. (06 Marks)
 - b. Draw a general layout of hydro – electric power plant and explain the functions of each part. (08 Marks)
 - c. Explain briefly about : i) Water hammer effect ii) Surge tank. (06 Marks)

PART – B

- 5
 - a. Explain with neat sketch, the layout of nuclear power plant. (08 Marks)
 - b. State the functions of moderator, control rods and reflector. (06 Marks)
 - c. Explain with neat sketch, the working of pressurized water reactor. (06 Marks)
- 6
 - a. Explain with proper sketch, about solar P-V conversion system. (06 Marks)
 - b. Give a brief note on horizontal and vertical axis wind mill system. (06 Marks)
 - c. The incident beam of sunlight has a power density of 1 kW/m^2 in the direction of beam. The angle of inclination is 60° . Calculate the power collected by the surface, having a total flat area of 120m^2 . (08 Marks)
- 7
 - a. Give a short note on tidal power plant. (06 Marks)
 - b. Explain briefly about OTEC plants. (08 Marks)
 - c. What is meant by Geothermal energy conversion? (06 Marks)
- 8
 - a. What are the stages in anaerobic digestion process? Explain. (06 Marks)
 - b. With neat sketch, explain the working of floating type digester. (08 Marks)
 - c. What are the factors affecting the generation of biogas in a digester? (06 Marks)
