Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/M.TECH(EE)/SEM-3/PSM-301C/2011-12

2011

POWER PLANT ENGINEERING

Time Allotted : 3 Hours   *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words

as far as practicable.

Answer any *five* questions.   5 × 14 = 70

1. a) Describe with the help of *p-v* and *T-s* diagram, the different thermal power plant cycles.   10

    b) What do you mean by reversible process ?   2

    c) What are the limitations of Carnot cycle ?   2

2. a) Draw and label the different parts of 2-pass or T1-type layout of a boiler.   8

    b) What do you mean by attemperation ? Why is attemperation done ? From which location is the spray water taken ?   2 + 2 + 2

3. a) Describe the central firing system with the help of a neat diagram. What are the advantages of central firing system ?   6 + 3

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b) What are the differences between straight flow and vortex burner ? 3

c) Why drying of pulverised coal is required before its combustion ? 2

4. a) Explain the flue gas circuit of Thermal Power Plant with the help of a neat schematic diagram. 8

b) Write down the limitations of Regenerative Air pre-heaters. 2

c) What are scanners ? Why are scanners used ? How are scanners cooled ? 1 + 2 + 1

5. a) Explain HP-LP Bypass system with the help of a schematic diagram. 8

b) What are the methods to increase the efficiency of Rankine cycle ? 4

c) Why is blowdown done ? What is the function of steam drum ? 1 + 1

6. a) Explain with a neat sketch the general arrangement of storage type Hydro-electric projects and its operation. 8

b) What do you mean by Cavritation ? 2

c) Write a short note on Pelton turbine. 4

7. a) Explain CANDU-type reactor with the help of a neat diagram and label its parts. 8

b) What are the advantages of CANDU-type reactors. 3

c) Write down the function of control rods used in Nuclear Power plants. 3

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