B.Tech 7th Semester F-Scheme (ME)

Examination, December–2017

POWER PLANT ENGINEERING

Paper–ME-407-F

Time allowed : 3 hours] *[Maximum marks : 100*

*Note: Attempt any **five** questions in all. **Question number one is compulsory** and select at least **one** question from each section.*

1. (a) What is the waste of nuclear plants? 2½×8

(b) What is the present installed capacity in Haryana and name the various newly constructed plants of Haryana?

(c) What is geothermal energy?

(d) What is super heater? How much boiler efficiency improves by super heater?

(e) What do you mean by Depreciation and write the name of various method of calculation?

(f) What do you mean by run off?

(g) What do you mean by Utilization factor, Diversity factor and Demand factor?

(h) What are the various conventional method of generating electric power?

Section–A

2. Discuss the basic thermodynamic cycles used in power plants with mathematical derivation. 20

3. Discuss the various types of power plants which can be installed in India and explain the various factors which govern the selection of plants. 20

Section–B

4. Give the layout of modern stream power plant. Also explain the salient feature of the same. 20

5. How the exhaust gases from gas turbine of gas turbine power plant can be used in a steam power plant? Show by line diagram at least two such arrangements. Also discuss advantages of these arrangements. 20

Section–C

6. Discuss the various method of finding the cost of electrical energy and various tariffs methods used by state govt. for electrical energy. 20

7. The annual peak load on a 30 MW power station is 25 MW. The power station supplied loads having maximum demands of 10 MW, 8.5 MW, 5MW and 4.5 MW. The annual load factor is 45%. Find.

   (a) Average load

   (b) Energy Supplied by year

   (c) Diversity factor

   (d) Demand factor 20

Section–D

8. Discuss the various methods of solar radiation estimation. Also explain the various types of solar energy collectors. 20

9. Describe in brief the following method of energy generation:

   (a) Thermoelectric power generation.

   (b) Magneto hydrodynamics (M.H.D.) 20