ME - 602

B.E. VI Semester

Examination, December 2014

Power Plant Engineering

Time : Three Hours

Maximum Marks : 70

Note: Total No. of questions 10. Solve any five of them. Assume suitable data.

Unit - I

1. a) Name the principal types of power plant? Explain one of them. 7

b) Write short notes: 7

i) Tidal power

ii) Wind power

iii) Thermoelectric power

OR

2. What is chemical fuel? How are chemical fuels are classified? Explain with suitable example. 14

Unit-II

3. What is cooling tower'? How are cooling tower classified? Explain any one of them with neat sketch? 14

OR

4. With the help of a neat diagram, explain a typical fuel handling plant? 14

Unit - III

5. On an average, how many collision are needed with a carbon nucleus to reduce the energy of fast neutron from 2Me v to 1/30 EV

14

OR

6. Random gas has a half life of 3.83 days. What is its radioactive decay constant? What percentage of random atoms originally present will decay in a period of 30 days? 14

Unit - IV

7. A hydro-turbine is required to give 25 MW at 50 m head and 90 r.p.m. runner speed. The laboratory facilities available, permit testing of 20 kW model at 5m head. What should be the model runner speed and model prototype scale ratio. 14

OR

8. What is hydrograph and unit of hydrograph? What are the limitations to use of unit hydrograph? 14

Unit - V

9. The input-output curve of a 50 MW power station is given by: $I = 4 \times 10^6 (8 + 8L + 0.4L^2)$ kg/hour where I is the input in kg/hour and L is load in MW. 14

i) Determine the heat input per day to the power station of it works for 20 hrs at full load and remaining period at no load.

ii) Also find the saving per kwh of energy produced of the plant works at full load for all 24 hours generating the same amount of energy.

OR

10. Explain the following tariff. 14

i) Straight meter rate

ii) Block meter rate

iii) Doherty rate (three part tariff)