Or

The yearly duration curve of a certain plant can be considered as a straight line from 300MW to 80MW. Power is supplied with one generating unit of 200MW capacity and two units of 100MW capacity each. Determine:

i) Installed capacity

ii) Load factor

iii) Plant factor

iv) Maximum demand

v) Utilization factor

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Roll No .....

ME - 602

B.E. VI Semester

Examination, June 2016

Power Plant Engineering

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each question are to be attempted at one place.
iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.
iv) Except numericals, Derivation, Design and Drawing etc.

1. a) Enumerate the various non conventional sources of energy.

   b) What is thermoelectric effect?

   c) How energy can be generated using biomass?

   d) What are the advantages and limitations of tidal power generation?

   Or

   Describe with the neat sketch, the working of a solar power plant. What are its salient features?

2. a) Explain the term out door and indoor plant.
   b) What is meant by F.B.C.?
   c) What is the principal requirement of an ash handling plant?
   d) List the factors which should be considered while designing a power plant.

Or

2700kg of steam is produced per hour at a pressure of 750kPa in a boiler with feed water at 42°C. The dryness fraction of steam at exit is 0.98. The amount of coal burnt/hour at 335kg of calorific value 31000kJ/kg. Determine boiler efficiency and equivalent evaporation. Take $h_f = 708$kJ/kg, $h_{fg} = 2055$kJ/kg.

3. a) What do you understand by the term Radioactivity?
   b) Define half life related to radioactive decay.
   c) What are desirable properties of a shielding material?
   d) What is moderator in nuclear reactor? Explain the desirable properties of good moderator.

Or

What is "Boiling Water Reactor"? How does it differ from "Pressurized water reactor"?

4. a) Enlist the advantages of the water power.
   b) What do you mean by flow duration curve?
   c) Discuss the site selection for Hydro power station.
   d) Explain the various types of surge tanks with suitable diagram.

Or

The data for a weekly flow at a particular sight is given below for 12 weeks.

Week	Weekly Mean Discharge (m^3/sec)
1	6400
2	4000
3	5400
4	2000
5	1500
6	1000
7	1200
8	4500
9	8000
10	4000
11	3000
12	2000

Find size of reservoir and possible rate of available flow after the reservoir had built in with the help of mass curve.

5. a) Differentiate the plant capacity factor and plant use factor.
   b) Define connected load and maximum load.
   c) What do you understand by the term tariff?
   d) List the various cost which go to form the total cost of a power station.