Roll No .....

ME - 602

B.E. VI Semester

Examination, December 2015

Power Plant Engineering

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each questions 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) Write primary and secondary energy sources.
   b) Define: Tidal energy, Wind energy.
   c) What are the various methods to convert various energy sources to electric power? Classify direct and indirect methods.
   d) What do you mean by hybrid energy systems? Discuss various feasible combinations.

   OR

   Describe with neat sketch MHD converter.

2. a) State the advantages and disadvantages of pulverized fuel firing over stoker firing.
   b) State brief about choice of steam cycle for plant.
   c) Write the function of cooling tower. State its classifications.
   d) Explain various types of fuel burning systems with their

   OR

   Explain the effect of climatic factors on thermal station and equipment design.

3. a) State the importance of nuclear power in India.
   b) State the classification of nuclear power plants.
   c) Define the terms: Radio activity, Moderators and Binding energy concept.
   d) Compare fast and thermal reactors. Describe working principle of any one type of nuclear reactor best suitable for Indian situation.

   OR

   Explain boiling water reactor with neat sketch. State is limitations.

4. a) State the function of penstocks also states its types.
   b) What is Flow and power duration curve?
   c) Discuss briefly elements of hydrological computation.
   d) Explain the following terms:
      i) Balancing reservoir
      ii) Micro and Pico hydro machines
      iii) Spillways

   OR

   Discuss site selection criteria for hydro power station.

5. a) Define the terms: Maximum demand, Load factor.
   b) What are interconnected systems? State their advantages.
   c) Explain how estimation and prediction of load is done?
   d) Compare economics of hydro, nuclear and thermal power plants.

   OR

   Explain the following terms:
   i) Diversity factor ii) Plant factor
   iii) Types of tariff