Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

VI SEMESTER B.TECH (MECHANICAL ENGINEERING)

END SEMESTER EXAMINATIONS, JUNE/JULY 2016

SUBJECT: POWER PLANT ENGINEERING [MME 342]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** the questions.
- Missing data may be suitable assumed.

1A. Define the following:

(a) Load factor
(b) Diversity factor **02**

1B. Explain Base Load Plant and Peaking Plant. **02**

1C. A generating station has a maximum demand of 5000 kW and the daily load on the station is as follows:

Load (MW)	1000	1750	4000	1500
Time	11PM-6AM	6AM-8AM	8AM-12 noon	12 Noon-1PM
Load (MW)	3750	4250	5000	2250
Time	1PM-5PM	5PM-7PM	7PM-9PM	9PM-11PM

a) Draw the load curve and load duration curve
b) Find the load factor
c) Determine the plant capacity factor **06**

2A. With the aid of a neat labelled diagram explain the working of a High head hydel Plant. **04**

2B. Explain the concept of “Water Hammer”. **03**

2C. Enumerate any three merits of Hydel power plants over Thermal power plants. **03**

3A. With the help of a neat sketch explain the working of chain grate stoker. **03**

3B. Explain unit system of feeding the pulverized fuel for firing into the combustion chamber of the power plant. **03**

3C. A chimney has a height of 28m. The ambient temperature is 27°C. Temperature of flue gases passing through the chimney is 320°C. If the furnace is supplied with 15kg of air per kg of coal burnt, find the following:

(a) The theoretical draught in mm of water **04**

(b) Draught height in meters of hot gases.

4A. With the aid of a neat sketch explain the wet sump lubrication system employed in diesel engine plants. **03**

4B. Explain any two engine starting methods used in diesel engine plants. **03**

4C. Sketch and explain the working of a closed cycle gas turbine plant. Enumerate any two merits of closed cycle plant over an open cycle plant. **04**

5A. Explain how the reservoir capacity is calculated in a hydel power plant **03**

5B. What is a 'Hydrograph'? Explain its applications. **04**

5C. What are the factors that affect the run-off from an area? **03**

6A. Sketch and explain the working of a Boiling Water Reactor. **04**

6B. Explain briefly the functions of the following in a nuclear reactor:

(a) Control rods (b) Moderator **04**

6C. Explain briefly the nuclear fission reaction. **02**