Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

VI SEMESTER B. TECH (MECHANICAL ENGG.) END SEMESTER EXAMINATIONS, APRIL 2018

SUBJECT: POWER PLANT ENGINEERING [MME 4031]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitable assumed.

1A. A power station supplies the following loads to the consumers:

Time (hrs.)	0-6	6-10	10-12	12-16	16-20	20-22	22-24
Load (MW)	30	70	90	60	100	80	60

06

(a) Draw the load curve and estimate the load factor of the plant

(b) What is the load factor of the standby equipment of 30 MW capacity if it takes up all loads in excess of 70MW? What is its use factor?

1B. Explain the various investigations carried out for the selection of a site for power plant. **04**

2A. Sketch and explain the working of a pumped storage plant. **03**

2B. Explain different factors based on which a specific type of dam in selected. **03**

2C. Define ‘runoff’. Classify and explain the different forms of runoff. **04**

3A. Sketch and explain the working principle of underfeed stoker **03**

3B. Differentiate between the central and unit system for feeding pulverized coal **04**

3C. Sketch and explain the high-pressure hydraulic ash handling equipment. **03**

4A. With the aid of a flow diagram explain the working of a Velox boiler. **04**

4B. Define ‘draught’. With the help of a neat labelled diagram explain the working of a balanced draught. **04**

4C. Explain the various factors responsible for water loss during cooling in a cooling tower **02**

5A. With the aid of a neat labelled diagram, explain the working principle of a gas-cooled nuclear reactor. **04**

5B. Sketch and explain the principle of a thermo-syphon cooling. **03**

5C. List the demerits of closed cycle over open cycle gas turbine power plants. **03**