Reg. No.



MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL (A constituent unit of MAHE, Manipal)

VI SEMESTER B. TECH (MECHANICAL ENGG.)

END SEMESTER MAKEUP EXAMINATIONS, JUNE 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. For a power station the yearly load duration curve is a straight line from 30,000 to 4,000kW. To meet the load the turbo-generator are installed. The capacity of two generators is 15,000kW each and the third is rated at 06 5,000kW. Determine the following: (a) Load factor (b) Capacity factor (c) Maximum Demand Define the following with proper mathematical equations: 1B. (a) Plant capacity factor (b) Diversity factor (c) Load factor (d) Connected 04 load **2A.** List out the functions of surge tank. With a neat sketch explain the working 04 principle of a differential surge tank. **2B.** Sketch and explain the working of a High-head hydro power plant. 03 **2C.** List the merits of hydel power plant over thermal power plants. 03 **3A.** Sketch and explain the working principle of spreader stoker. 04 **3B.** With the aid of a neat labelled diagram, explain the working principle of 04 pneumatic ash handling equipment. 3C. List any two merits and demerits of gravitational separator. 02 4A. With the aid of a flow diagram explain the working of a La Mont boiler. 04 4B. Sketch and explain the working principle of hyperbolic cooling towers. 04 4C. Briefly explain the nuclear fission reaction. 02 5A. With the aid of a neat labelled diagram, explain the working principle of a 04 boiling water reactor.

- **5B.** Sketch and explain the principle of splash lubrication.
- 5C. List the various methods to improve the efficiency of a gas turbine power 03 plant. Explain any one method in detail.

03