

Roll No. ....

## OLE-24479

### B. Tech. 7th Semester (ME) Examination – April, 2021

#### POWER PLANT ENGINEERING

Paper : ME-407-F

*Time : Three Hours ]*

*[ Maximum Marks : 100*

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*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

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**Note :** Attempt *five* questions in all, selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. All parts carry equal marks :  $4 \times 5 = 20$

(a) Write short note on different types of power plants.

(b) Explain Electrostatic Precipitator.

(c) Explain Economic Load Sharing.

(d) What is OTEC ?

### **SECTION – I**

2. Why the exploration of renewable source of energy has become essential ? Also discuss the factor based on which the selection of power plant is done. Write down the names of basic thermodynamic cycles used in power plant ? 20
3. Draw the schematic layout of a Hydro Electric Power Plants and discuss the functions of each components in operation of power plant. 20

### **SECTION – II**

4. With the help of schematic diagram discuss the operation of Steam Power Plant. Also discuss in details the various factors which must be consider in selecting the site of Steam Power Plants. 20
5. Explain the re-powering systems with gas production from coal. Why combined cycle with gas production from coal have become useful nowadays explain ? 20

### SECTION – III

6. With the help of schematic diagram discuss the operation of Nuclear Power Plants. What are the advantages of Nuclear Power Plants ? Discuss the problems associated with such power plant. 20
7. A thermal power plant consists of two units of 30 MW each running for 9200 hours and one unit of 10 MW running for 3000 hours in a year. The energy produced by the plant  $400 \times 10^6$  kWh per annum. Determine the plant load factor and plant use factor. The maximum demand is equal to the plant capacity. 20

### SECTION – IV

8. Write a short note on : 20
- (a) Wind Power Plants
  - (b) Tidal Power Plants
  - (c) Geothermal Power Plants
9. Define Fuel cell. Compare the full cell and conventional power plant. Also explain hermoelectric power generation. 20