



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Third Semester, B.E. - Electrical and Electronics Engineering

Semester End Examination; Dec.-2019

Power Plant Engineering

Time: 3 hrs

Max. Marks: 100

Note: i) PART - A is compulsory. Two marks for each question.

ii) PART - B: Answer any **Two** sub questions (from a, b, c) for Maximum of **18 marks** from each unit.

Q. No.	Questions	Marks
I : PART - A		10
I a.	What are the four main circuits in thermal power plant?	2
b.	Mention the different parts of a nuclear reactor.	2
c.	Define micro-generation.	2
d.	Define plant capacity factor and plant use factor.	2
e.	What are the methods adopted for grounding system?	2
II : PART - B		90
UNIT - I		18
1 a.	With a neat general layout, explain the arrangement and operation of a hydro-electric power plant.	9
b.	With a neat diagram, explain the classification of hydro-electric plants according to available head.	9
c.	With neat block diagram, explain the working of thermal power plant.	9
UNIT - II		18
2 a.	Mention the main parts of a reactor and explain their functions with a neat diagram.	9
b.	Write a brief note on safety of nuclear power station and disposal of radioactive waste.	9
c.	Explain the factors required for the choice and characteristics of diesel engines.	9
UNIT - III		18
3 a.	With a neat solar-water heating arrangement, briefly explain the working of solar power plant.	9
b.	Write a brief note on harnessing the tidal energy, with a neat diagram.	9
c.	Draw a neat typical geothermal power plant block diagram and write a brief note on geothermal power and mention the advantages and disadvantages.	9

UNIT - IV**18**

- 4 a. Explain diversity factor and Load factor. A generating station supplied the following loads: 150 MW, 85 MW, 60 MW and 5 MW. The station has a maximum demand of 220 MW. The annual load factor of the station is 48%. Calculate;
- i) The number of units supplied annually 9
 - ii) The density factor
 - iii) The demand factor
- b. Explain briefly the method of improving power factor using static capacitors. 9
- c. What do you understand by electrical tariff? Discuss two part tariff, flat rate tariff and power factor tariff. 9

UNIT - V**18**

- 5 a. Define arcing ground. With a neat phasor diagram, explain 3 ϕ isolated system. 9
- b. Explain the resistance grounding system and reactance grounding system. 9
- c. Explain earthing transformer with a neat diagrams. Mention the advantages of neutral grounding. 9

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