Code No: R2022023 **R20** **SET - 1**

II B. Tech II Semester Supplementary Examinations, December - 2022

POWER SYSTEM-I

(Electrical and Electronics Engineering)

Time: 3 hours **Max. Marks: 70**

Answer any **FIVE** Questions, each Question from each unit
All Questions carry **Equal** Marks

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UNIT-I

1 a) Mention the function of various components in a Hydroelectric generation system. [10M]

b) Enumerate the points to be considered for the selection of site for Hydroelectric power station. [4M]

Or

2 a) With a neat sketch explain the purpose of economizer. [7M]

b) Mention the advantages of pulverized fuel firing. [7M]

UNIT-II

3 Draw the schematic diagram of nuclear power station and explain it. [14M]

Or

4 a) Mention the advantages and disadvantages of nuclear power plants. [7M]

b) What are the fuel materials for nuclear reactors? [7M]

UNIT-III

5 a) Give the comparison between air insulated and gas-insulated substations. [7M]

b) A 230 kV, three phase, 50Hz, 200 km transmission line has a capacitance to earth of 0.015 μF/km/phase. Calculate the inductance and kVA rating of the peterson coil used for earthing the system. [7M]

Or

6 a) Draw the layout diagram double bus bar with single breaker system and explain it briefly. [7M]

b) Discuss the main components of GIS briefly. [7M]

UNIT-IV

7 Explain the properties of insulating materials for cables and mention their uses. [14M]

Or

8 a) Prove that the insulation resistance is inversely proportional with the length of the cable. [7M]

b) The insulation of a single core cable is 500MΩ/km. if the core diameter is 2.6cm and resistivity is 5×10^{14} Ω-cm, find the insulation thickness. [7M]

UNIT-V

9 Write short notes on the following: [14M]

i) Simple tariff ii) Flate rate tariff iii) Three part tariff

Or

10 a) Define Load curve and Load duration curve. What is its significance? [7M]

b) A generating station has a maximum demand of 35 MW and has connected load of 60 MW. The annual generation of units is 24×10^{7} kWh. Calculate the load factor and the demand factor. [7M]

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