Total No. of Questions : 4]

SEAT No. :

PF200

[Total No. of Pages : 2

Apr-26/SE/Insem-246

S.E. (Electrical Engineering) (Insem)

POWER SYSTEM-I

(2019 Pattern) (Semester - IV) (203145)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Solve Q.1 or Q.2 and Q.3 or Q.4.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data if necessary.***
5) ***Use of non-programmable calculator is allowed.***

Q1) a) A power station has the following daily load cycle, **[7]**

Time in (Hours)	6-8	8-12	12-16	16-20	20-24	24 - 6
Load in (MW)	30	50	70	20	40	50

Plot the daily load curve and load duration curve also calculate the energy generated per day.

b) State different types of tariff and explain any one type of tariff in detail. **[8]**

OR

Q2) a) Explain the concepts of Base load plant and peak load plant and hence explain the advantages of interconnected grid system. **[7]**

b) The tariff is in force is Rs. 120 per kVA of maximum demand and 10 paisa per unit consumed. If the load factor is 30%, find the overall cost per unit at **[8]**

i) Unity p.f. and

ii) 0.8 p.f.

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Q3) a) State different types of Bus bar system and explain any one of them in detail. **[7]**

b) Derive an expression for insulation resistance of single core cable and a single core cable has conductor diameter of 2cm and internal sheath diameter of 2.8cm if impregnated paper of relative permitivity of 4 is used as the insulation, calculate capacitance of 2km length of the cable.**[8]**

OR

Q4) a) Explain in brief the necessity and working of following equipment's used in power plant **[7]**

i) Protective Relay

ii) Power transformers

b) The insulation resistance of a single-core cable is 300M Ω per km. If the core diameter is 2.5cm and resistivity of insulation is 3.5×10^{14} Ω-cm,find the insulation thickness. **[8]**

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