Total No. of Questions : 4]

SEAT No. :

PD13

[Total No. of Pages : 1

[6409]-206
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 Q1 or Q2; Q3 or Q4.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Assume suitable additional data, if necessary.***
5) ***Use of non-programmable calculator is allowed.***

Q1) a) Explain the concepts of Base load plant and Peak load plant and hence explain the advantages of interconnected grid system. **[7]**

b) Maximum demand of a generating station is 100MW. The load factor is 65%. The plant capacity factor and the plant factor are 50% and 80% respectively. Determine: (i) Average demand (ii) The daily energy produced. (iii) The installed capacity of the plant. (iv) The reserve capacity of the plant. **[8]**

OR

Q2) a) State different types of tariff and explain Time of day tariff. **[7]**

b) A consumer has a maximum demand of 200 kW at 40% load factor. If the tariff is Rs. 100 per kW of maximum demand plus 10 paise per kWh, find the overall cost per kWh. **[8]**

Q3) a) Explain the need of grading of underground cable? Explain any one method. **[7]**

b) Derive an expression for insulation resistance of single core cable and determine the insulation resistance of single core cable of length of 4 Km long with a conductor diameter 0.3m and insulation thickness 0.1m and the resistivity of insulation is 5×10^{12} Ω-m. **[8]**

OR

Q4) a) Explain Each layer of sectional view of underground cable with its neat sketch. **[7]**

b) Derive the expression for capacitance of single core cable. **[8]**

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