PA-4964

[6008]-212
S.E. (Electrical) (Insem)
POWER SYSTEMS - I
(2019 Pattern) (Semester - II) (203145)

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

Instructions to the candidates:

 1) *Answer Q1 or Q2, Q3 or Q4.*

 2) *Neat diagrams must be drawn wherever necessary.*

 3) *Figures to the right indicate full marks.*

 4) *Assume Suitable data if necessary.*

Q1) a) Define tariff hence state different objectives of tariff.   **[5]**

 b) Explain what is interconnected grid system hence state its advantages.**[5]**

 c) A Daily load on a generating station is as follows.   **[5]**

Time (Hrs)	0-5	5-10	10-13	13-18	18-20	20-24
Load (MW)	25	30	40	35	50	25

 Draw the load curve and calculate load factor

OR

Q2) a) The maximum demand of a consumer in a year is 400 kW at 0.8 load factor, If the tariff is Rs. 150/ kW of MD + 20 paisa/kWh. Find overall cost/kWh   **[4]**

 b) Write a note on Availability Based tariff.   **[5]**

 c) Define the following terms and state their use :   **[6]**

   i)   Load Factor

   ii) Demand Factor

   iii) Plant Capacity Factor

P.T.O.

Q3) a) Explain in brief working of following equipment's in power station hence state their use in the system. **[6]**

   i) Alternators

   ii) Protective relays

   b) With neat diagram, explain working of AC excitation system used in alternator. **[4]**

   c) A 110 kV, 50 Hz. 5 km long underground cable has conductor diameter of 2.5 cm and diameter of lead sheath is 4 cm. Calculate capacitance of cable per phase. Assume $\varepsilon_r = 4.6$. **[5]**

OR

Q4) a) Explain what is necessity of grading of cables hence explain capacitance grading. **[6]**

   b) Derive the expression for maximum and minimum dielectric stress in single core cable. **[4]**

   c) Explain use of power transformer hence list different specifications written by manufacturer on nameplate of power transformer. **[5]**

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