Total No. of Questions : 4]

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Oct-22/TE/Insem-536

T.E. (Electrical)

ELECTRICAL INSTALLATION, DESIGN AND CONDITION BASED MAINTENANCE

(2019 Pattern) (Semester-I) (303144)

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

Instructions to the candidates:

1) ***Solve Q1 or Q2, Q3 or Q4.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Black Figures to the right indicate full marks.***
4) ***Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.***

Q1) a) Differentiate between: Feeder & Distributor. **[6]**

b) With a neat phasor diagram explain calculation of voltage drop in AC distributors referred to the receiving end voltage. **[5]**

c) Derive equation for volume of conductor required for D.C. 2 wire system with midpoint earthed with diagram. **[4]**

OR

Q2) a) Explain how Kelvins Law is helpful in deciding the most economical cross section of a conductor with its limitations. **[5]**

b) Calculate the most economical cross sectional area of the two conductor cable carrying current of 200A throughout the year. The other data is as follows:

i) Length of cable = 1000 met

ii) Cost of cable including installation is (20a+20)/ meter, where 'a' is cross sectional area of the conductor, sq.cm

iii) Cost of energy Rs. 0.06/kWH

iv) Interest & depreciation charges = 10%

v) Resistivity = 1.73 micro Ohm cm **[6]**

c) Explain interconnected supply system with neat diagram. **[4]**

P.T.O.

Q3) a) State & explain factors affecting soil resistivity. **[6]**

b) State the types of bus bar systems & explain duplicate bus bar system with diagram. **[5]**

c) As per IS 3043 draw and explain plate electrode system of earthing. **[4]**

OR

Q4) a) Explain steps in designing of an earthing grid of substation with reference to IEEE standard. **[6]**

b) Explain the terms touch potential and step potential with relevant equivalent circuits. **[4]**

c) State the symbols used & function of the following equipments: **[5]**

i) Lightening arrester

ii) Isolator with earth blade

iii) Air blast CB with current tripping

iv) Three phase transformer with no load tap changer

v) Current Transformer & Potential Transformer