[4658] – 544

Seat No.	

T. E. (Electrical) (Semester – I) Examination, 2014
ELECTRICAL INSTALLATION MAINTENANCE AND TESTING
(2012 Course)
(As Per Syllabus)

Time : 3 Hours Max. Marks : 70

Instructions *: 1) Answer Q 1 or Q 2, Q 3 or Q 4, Q 5 or Q 6, Q 7 or Q 8.*
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****.*
5) Assume suitable data ***if necessary****.*

UNIT – I, II & III

1. a) State the basic causes of insulation degradation and explain how they affect the quality of insulation. **6**
   b) How transformer oil gets contaminated ? With suitable block diagram explain the reconditioning process of transformer oil. **7**
   c) Which are the faults occurred in induction motor ? What are the causes and remedies for them ? **7**

OR

2. a) Explain the preventive maintenance activities of induction motor which can be performed without actually dismantling the motor completely. **6**
   b) Discuss in detail various failure modes of transformer. **7**
   c) What is signature analysis ? How it is used for condition monitoring of induction motor ? **7**

UNIT – IV

3. a) Explain in detail tan δ measurement. **8**
   b) Explain in detail various causes of failure in power cables. **8**

OR

4. a) List out various methods for location of fault in power cable. Explain any one in detail. **8**
   b) Write a detail note on thermography and its use in condition monitoring of induction motor. **8**

UNIT – V

5. a) State and explain Kelvin's law. State limitations of Kelvin's law. **8**

P.T.O.

b) A single phase distributor has a resistance of 0.2 Ω and reactance of 0.3 Ω . At far end the voltage 'Vb' is 240 V. and current is 100 Amp at 0.8 p.f. lagging. At mid point 'a' the current is 100 Amp at 0.6 p.f. lagging with respect to voltage 'Va' at 'a'. Find supply voltage and phase angle between 'Vs' and 'Vb'. **10**

OR

6. a) Compare overhead and underground supply system stating their advantages and disadvantages. **8**

b) The cost /KM for each conductor of a section 'a' m2 for transmission line is (2800 + 1300a) the load factor of load current is 80% and the load factor for the loss is 65%. The rate of interest and depreciation is 10% and the cost of energy is 5 paisa/kwh. Find the most economical current density for transmission line by use of Kelvin's law. **10**

UNIT – VI

7. a) Explain in detail the function of the equipments used in substation. **6**

b) State and explain the factors which affect the soil resistivity. **4**

c) What are the essentials of estimating and costing ? **6**

OR

8. a) Draw the single line diagram of 11kV outdoor substation. Explain its earthing system. **6**

b) List the various bus bar systems and with neat sketch explain the single bus bar system with sectionalization. **4**

c) How the quantity of material required for internal wiring is determined ? **6**

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