TED(15) – 3043 Reg. No. ……

(REVISION- 2015) Signature……

THIRD SEMESTER DIPLOMA EXAMINATION IN ELECTRONICS AND COMMUNICATION ENGINEERING

ELECTRICAL TECHNOLOGY

(Maximum marks: 100) (Time: 3 hours)

MODEL QUESTION PAPER

PART – A

(Maximum Mark: 10) Marks

I Answer the following questions in one or two sentences. Each question carries 2marks.

1. Identify the main difference between Alternating Current and Direct Current.
2. Define the term `form factor` and its value in sine wave.
3. List the major parts of transformer.
4. Identify the needs of starter in DC motor.
5. State the general classification of three phase induction motor. (5x2 = 10)

PART – B

(Maximum Mark: 30)

II Answer any five of the following questions. Each question carries 6 marks.

1. Derive an equation of impedance of an RL series circuit.
2. Draw the vector diagram and circuit of an AC circuit containing(1) Resistor only (2) pure Inductor only (3) pure Capacitor only.
3. State and explain Thevenin`s theorem.
4. Explain the different types of losses in a transformer.
5. Derive the emf equation of a DC generator
6. Explain the working principle of servomotor.
7. Compare single phase and three phase induction motor. (5x6 = 30)

PART – C

(Maximum Mark: 30)

(Answer one full question from each nit. Each full question carries 15marks)

UNIT -I

III. (a) Explain the working of single loop AC generator with neat sketch. 8

(b) A 120V AC circuit contains 10Ω resistance and 30Ω reactance connected in series. Find the power and power factor of the circuit. 7

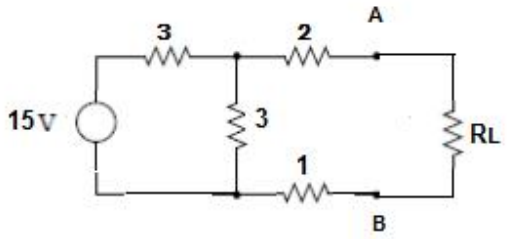
OR

IV. (a) Define 1. RMS value 2. Amplitude 3.Phase 4.Frequency. 8

(b) With neat sketch explain the method of pipe earthing. 7

UNIT -II

V. (a) In the network shown in figure; find the value of RL such that maximum possible power will be transferred to RL. Find also the value of the maximum power and power supplied by source under these conditions. 8

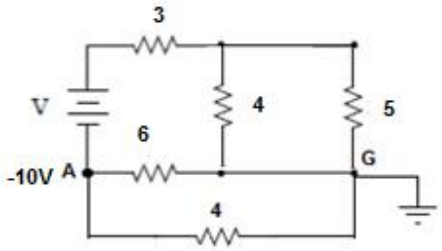


(All resistances are in ohm)

(b) Explain the elementary theory of an ideal transformer. 7

OR

VI. (a) In figure, the potential at point` A` is -10V. using Kirchhoff`s voltage law find
(i) value of ` V ` and (ii) power dissipated by 3Ω resistance. All resistances are in ohm. 8



(b) Derive the EMF equation of the transformer. 7

UNIT –III

VII. (a) Explain the working principle of DC generator with neat sketch. 8

(b) Compare the characteristics of different types of DC motor. 7

OR

VIII (a) Define back emf and its importance in DC motor. 8

(b) Explain armature reaction and its effects. 7

UNIT –IV

IX. (a) Explain the open circuit characteristics of an alternator. 8

(b)Explain the working and application of servomotor. 7

OR

X. (a) Explain the working and classification of stepper motor. 8

(b) Explain the working of Universal motor. 7

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