

TED(15) – 3033
(REVISION – 2015)

Reg No.....
Signature.....

THIRD SEMESTER DIPLOMA EXAMINATION IN ELECTRICAL AND
ELECTRONICS ENGINEERING

FUNDAMENTALS OF AC SYSTEM

MODEL QUESTION PAPER

[Time : 3 hours]

(Maximum marks : 100)

PART – A

(Maximum marks : 10)Marks

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

1. Define Instantaneous value of an alternating current.
2. Define Inductive reactance in an AC system.
3. Define Resonance in RLC series circuit.
4. Names the interconnection used in three phase system.
5. Write the equation for finding single phase AC power.

(5x2=10)

PART – B

(Maximum marks : 30)

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

1. Compare AC and DC system.
2. Explain the Form factor and crest factor with equation.
3. Explain AC through RL parallel circuit with relevant vector diagrams.
4. Explain advantages of Poly phase system.
5. Distinguish between Star and Delta connections.
6. Explain three wattmeter method for power measurement in 3 phase system.
7. Distinguish between balanced and unbalanced load.

(5x6=30)

PART – C

(Maximum marks : 60)

Unit - I

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

III (a) Explain vector representation of alternating quantities. 8

- (b) A 50 Hz Sinusoidal voltage has a maximum value of 56.56 volt find the value of voltage 0.0025 Sec. after passing through maximum positive value. At what time measured from a positive maximum value will instantaneous voltage be 14.14v. 7

OR

IV (a) Explain generation of alternating quantities. 8

- (b) Two currents represented by $i_1=50 \sin 314t$ and $i_2=30 \sin (314t-\pi/6)$ are fed into a common conductor. Find the expression for the resultant current

in the form $i=I_m \sin (314t\pm\theta)$ 7

Unit – II

- V (a) Explain alternating current through RLC series circuit with relevant vector diagram 8
(b) A resistance of 15 ohm and an inductance of 4 Henry and a capacitance of 25 micro farad are connected in series across 230V AC supply, Calculate current, frequency and impedance 7

OR

- VI (a) Explain alternating current through RLparallel circuit with relevant vector diagram. 8
(b) A capacitor of 50 micro farad is connected in parallel with a coil has a resistance of 20 ohm and inductance of 0.05 H, the circuit is connected across 200V, 50Hz supply. Calculate Line current, PF and Power consumed. 7

Unit – III

- VII(a) Explain the generation of Poly phase voltages. 8
(b) Explain the balanced Star/Delta and Delta/Star conversions. 7

OR

- VIII (a) Explain the single phase and three phase systems. 8
(b) Three similar coils connected in Star take a total power of 3KW at a PF of 0.8 lagging from a three phase 400v, 50Hz supply. Calculate resistance and reactance of each coil. 7

Unit – IV

- VII(a) Explain various methods for power measurement in 3 phase circuits. 8
(b) Describe single wattmeter method for power measurement. 7

OR

- VIII (a) Explain the steps for finding reactive volt-ampere by using two wattmeters method 8
(b) Explain different types of power correction equipment. 7
