313320

24225

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answer with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following: **10**

a) Draw the symbols of Resistor and Capacitor.

b) Apply Ohm's Law to determine current through 8Ω resistance as shown in Figure No. 1

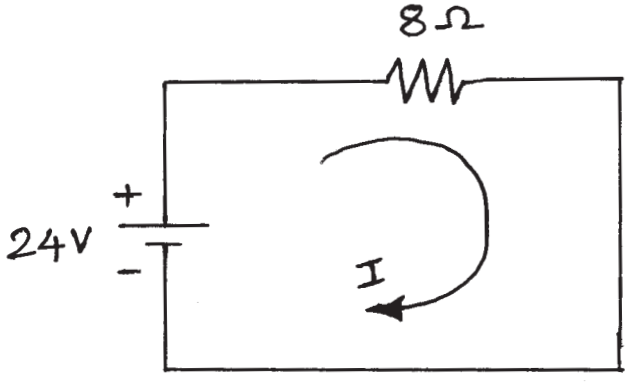

Fig. No. 1

P.T.O.

Marks

c) State Faraday's Law of Electromagnetic induction.

d) List the types of Losses in a transformer.

e) State the functions of following parts of DC motor –

i) Yoke

ii) Commutator.

f) List the types of single phase induction motor.

g) List the types of fuses.

2. Attempt any THREE of the following: **12**

a) Describe the working of servo motor with neat diagram.

b) Write any two applications of each of the following –

i) DC Series motor

ii) DC shunt motor.

c) State any two applications of each of the following motor –

i) Stepper motor

ii) Universal motor.

d) Describe the concept of KCL and KVL.

3. Attempt any THREE of the following: **12**

a) Draw a neat labelled sketch of following –

i) Capacitor start induction motor

ii) 3-phase induction motor.

b) Sketch a neat labelled construction of DC motor. Also list the important parts of DC motor.

c) Define the following terms w.r.to magnetic circuits –

i) Magnetic flux

ii) Flux density

iii) MMF

iv) Reluctance

Marks

d) Define the following terms w.r.to AC waveform –

i) Amplitude

ii) Frequency

iii) Time period

iv) R.M.S. value.

4. Attempt any THREE of the following: **12**

a) Write the applications of following measuring instruments –

i) Digital multimeter

ii) Megger

iii) Wattmeter

iv) Tachometer.

b) Distinguish between Electric and Magnetic Circuit.

c) Describe the working of transformer with neat labelled sketch.

d) State the functions of each of the following –

i) MCB

ii) ELCB.

e) Define earthing. List the types of earthing. State the need of earthing in electrical system.

5. Attempt any TWO of the following: **12**

a) State the factors for selection of drives for different motors.

b) A 20kVA, 3300/240V, 50Hz single phase transformer has 80 turns on secondary winding. Calculate –

i) Primary and Secondary currents on full load.

ii) No. of Primary winding turns.

iii) Maximum value of flux.

Marks

c) Using series-parallel combination law. Determine equivalent resistance between point A and B of the network shown in Figure No. 2.

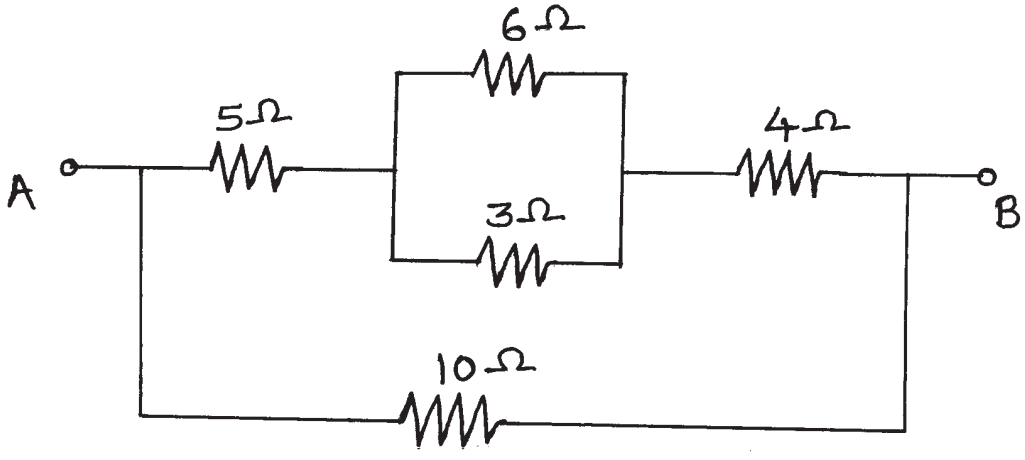

Fig. No. 2

6. Attempt any TWO of the following: **12**

a) Define universal motor. Give the types of universal motor. Describe the operation of universal motor with neat diagram.

b) Compare AC and DC supply any six points.

c) Describe the working of statically and Dynamically induced emf with neat diagram.
