Code: A-E 730126-A

I SEMESTER EXAM - 2023-24

2 x 155

Std.: XII | Sub: Electrical Maintenance - II | Marks: 40

Date: 08/11/2023 | Roll No.: _____ | Time: 2 ½ hrs.

Q.1) Fill in the blanks (any four) 4

a) _____ synchronous motor is called as synchronous condenser.
   i. Under excited
   ii. Over excited
   iii. 100% excited

b) 3Ø Slip-ring Induction motor has _____ type of rotor.
   i. Squirrel Cage
   ii. Double Cage
   iii. Wound

c) Universal motor works on both A.C. and D.C. supply.
   Say: True OR False

d) Star Delta starter is used for _____ HP Motor.
   i. 5
   ii. 7.5
   iii. 25

e) Capacitor in 1Ø A.C. Motor split the phase electrically apart by _____ .
   i. 120°
   ii. 360°
   iii. 90°

f) The synchronous speed of 3Ø, 4 pole 50 Hz induction motor is _____ R.P.M
   i. 750
   ii. 1000
   iii. 1500

Q.2) Attempt any three 6

a) Write a note on current transformer.
b) What is a transformer? On what principle does it work? Explain.
c) Why single phase motors are not self-starting?
d) Find the rotor speed of 4 pole, 50 Hz, 3 phase, 400V squirrel cage Induction motor if its slip is 3%.
e) What is meant by single phasing? What are its effects?

Q.3) Attempt any three 6

a) Mention the methods to start synchronous motor.
b) Why starters are used to start high H.P. motors?
c) What happens when transformer is connected to D.C. Supply?
d) What is the purpose of an exciter in a 3 phase synchronous motor.
e) Classify the types of single phase transformer according to -
   i. Voltage
   ii. Core

P.T.O

Q4) Attempt any two **6**

a) Compare Core type transformer and Shell type transformer.

b) Compare induction motor with synchronous motor.

c) How will you change the direction of rotation of:

i. 3ØIM

ii. Universal Motor

iii. Split Phase Motor

Q5) Attempt any two **6**

a) Explain construction and working of permanent capacitor motor with neat sketch.

b) A single phase induction motor fails to start. State the possible reasons.

c) Define:

i. Synchronous speed

ii. Slip

iii. Rotor frequency

Q6) Attempt any two **12**

a) Explain the maintenance schedule of three phase induction motor.

b) Describe the parts of a power transformer with a neat sketch.

c) A 1000 kVA transformer has full load Copper loss of 3 KW. Iron loss of 3KW. Find the efficiency of the transformer at -

i. F.L. unity power factor.

ii Half load 0.5 p.f.