Reg. No. : | | | | | | | | | | |

Question Paper Code: 53324

B.E./B.Tech. DEGREE EXAMINATION, DEC 2020

Third Semester

Chemical Engineering

15UEE324-ELECTRICAL DRIVES AND CONTROL

(Regulation 2015)

Duration: 1:15hrs Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. The motor required for heavy starting torque is CO1- R

   (a) Squirrel cage induction motor (b) Slip ring induction motor

   (c) Shaded pole induction motor (d) DC shunt motor

2. The time taken by the machine to reach temperature rise to 63.2 of its final temperature CO1- U

   (a) Heating time constant (b) Motor constant

   (c) Cooling time constant (d)Torque constant

3. The speed of induction motor with 4 poles and supply frequency 50Hz is CO2- U

   (a) 375 RPM (b)750RPM (c)1500RPM (d)3000RPM

4. The condition for maximum torque is given by at a slip CO2- U

   (a) $S_m = R_2$ (b) $S_m = X_2$ (c) $S_m = X_2 / R_2$ (d) $S_m = R_2 / X_2$

5. The starter is used to CO3- R

   (a) Increase starting current (b) Reduce starting current

   (c) Maintain load current (d) Control speed

6. Rotor resistance starter is used to start CO3- R

   (a) Slip ring induction motor (b) DC shunt motor

   (c) Squirrel cage induction motor (d) DC series motor

7. The equation related to field control method of speed is CO4- R

(a) Speed N directly proportional to ϕ (b) Speed N directly proportional to V

(c)Speed N indirectly proportional to $1 / \phi$ (d) Speed N directly proportional to I_a

8. The device used to convert DC to DC is CO4- R

(a) Converter (b) Inverter (c) Rectifier (d) Chopper

9. The synchronous speed equation is given by CO5- U

(a) $N_s = 120p / f$ (b) $N_s = 120f / p$ (c) $N_s = 60f / p$ (d) $N_s = f / p$

10. The inverter is used to convert CO5- R

(a) DC to AC (b) DC to DC (c) AC to DC (d) AC to AC

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Explain the different classes of motor duty with neat sketch. CO1-U (8)
12. State and explain the important features of various braking methods used for DC motors. CO2- U (8)
13. Explain with diagram for four point starter and mention its advantages. CO3- U (8)
14. Sketch the necessary circuits for the following methods of speed control for DC shunt motor and explain CO4- U (8)
    (i) Armature control
15. Explain any two speed control techniques of squirrel cage three phase induction motor. CO5- U (8)