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Question Paper Code: 36301

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2019

Sixth Semester

Electrical and Electronics Engineering

01UEE601 - ELECTRIC DRIVES AND CONTROL

(Regulation 2013)

Duration: 1.15 hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

- Which of the following is preferred for automatic drives?
 - Synchronous motors
 - Squirrel cage induction motor
 - Ward Leonard controlled dc motors
 - Slip ring induction motor
- Which of the following motor is preferred for blowers?
 - Wound rotor induction motor
 - Squirrel cage induction motor
 - DC shunt motor
 - DC series motor
- A four quadrant operation requires
 - Two full converters in series
 - Two full converters connected in parallel
 - Two full converters connected in back to back
 - Two semi converters connected in back to back
- In single phase full wave controlled rectifier, maximum output voltage is obtained at conduction angle and minimum at conduction angle
 - $0^\circ, 180^\circ$
 - $180^\circ, 0^\circ$
 - $0^\circ, 0^\circ$
 - $180^\circ, 180^\circ$

5. Stator voltage control for speed control of induction motors is suitable for
- (a) fan and pump drives
 - (b) drive of a crane
 - (c) running it as generator
 - (d) Constant load drive
6. In motor circuit static frequency changers are used for
- (a) power factor improvement
 - (b) improved cooling
 - (c) reversal of direction
 - (d) speed regulation
7. The advantage of self control mode of a synchronous motor is
- (a) High hunting Oscillations
 - (b) Requires Damper Winding in the synchronous motor
 - (c) Eliminate Stability Problem
 - (d) All the above
8. The torque angle is the
- (a) Angle between load and Line current
 - (b) Angle between load current and supply voltage
 - (c) both (b) and (d)
 - (d) Angle between excitation emf and supply voltage
9. The Phase controlled rectifier always consumes
- (a) Reactive Power
 - (b) Real Power
 - (c) Apparent Power
 - (d) Complex speed
10. The armature voltage control is only applicable for
- (a) Above Base Speed
 - (b) Below Base Speed
 - (c) both (a) and (b)
 - (d) Critical speed

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Explain the multi-quadrant operation of the electric drive with the help of Hoist Load. (8)
12. Explain in detail the single phase fully controlled rectifier control of dc separately excited motor with neat diagrams. (8)
13. Explain about variable frequency control in induction motor drives. (8)

14. Explain the closed loop operation of permanent magnet synchronous motor drive in detail. (8)
15. Derive the transfer function of a separately excited DC motor load converter system. (8)