

S.B. Roll No.....

INDUSTRIAL ELECTRONICS AND CONTROL OF DRIVES
5th Exam./Elect.EEE/2528/0552/Nov' 2016

Duration: 3 Hr

M. Marks: 75

SECTION-A

Q.1 Fill in the following ten blanks

1.5x10=15

- a. The process of turning off a thyristor is called.....
- b. In SCR applications, snubber circuit is used for.....
- c. LASCOR stands for
- d. In a fully controlled converter, the load voltage is controlled by controlling the of the converter.
- e. In a controlled rectifier, a free-wheeling diode is necessary if load is
- f. In a chopper the load voltage can be controlled by controlling cycle.
- g. A single-phase mid-point cyclo-converter has..... pulses.
- h. The most common method of speed control of a single phase induction motor is the control method.
- i. For dc motors, the speed below base speed can be achieved by adoptingcontrol method.
- j. The major part of a UPS that converts dc into ac is called.....

SECTION-B

Q2. Attempt any five questions

5x6=30

- i. What is heat sink and why is it necessary?
- ii. Show the basic construction of a UJT? What is its intrinsic stand off ratio?
- iii. What do you mean by controlled rectifier?
- iv. Why cyclo-converters are suitable for low frequency only?
- v. Explain the working of single phase dual converter with circuit diagram.
- vi. What are the main advantages and disadvantages of AC drives?
- vii. Explain with the help of a circuit diagram the scheme for speed control of a universal motor.
- viii. What is back-up time of a UPS? What are the factors which can increase back-up time?

SECTION-C

Q.3 Attempt any three questions

3x10=30

- (i) Draw and explain V-I characteristics of an SCR. Mark various states, voltages and currents.
- (ii) a) Explain the working of a single phase half wave controlled bridge rectifier for highly inductive load.
b) Distinguish between line commutated inverter and forced commutated inverter.
- (iii) What is Chopper? Explain its working, different types and applications.
- (iv) Name the speed control methods of 3-phase induction motors. Explain the voltage and frequency control method.
- (v) a) How the speed reversal of a dc motor is achieved using dual converter?
b) Compare ON-line, OFF-line and Line-interaction UPS.