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

Question Paper Code: 35301

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

Fifth Semester

Electrical and Electronics Engineering

01UEE501 - POWER ELECTRONICS

(Regulation 2013)

Duration: 1.15 hrs Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. A triac is equivalent to two SCRs

   (a) In parallel (b) In series
   (c) In inverse-parallel (d) None of these

2. The device that does not have the gate terminal is

   (a) Triac (b) FET (c) SCR (d) Diac

3. A converter which can operate in both 3-pulse and 6-pulse modes is

   (a) 1-phase full converter (b) 3-phase half wave converter
   (c) 3-phase semi converter (d) 3-phase full converter

4. In dual converter, the circulating current

   (a) allows smooth reversal of load current, but increase the response time
   (b) allows smooth reversal of load current with improved speed of response
   (c) does not allow smooth reversal of load current, but reduces the response time
   (d) flows if there is no interconnecting inductor

5. In dc choppers, per unit ripple is maximum when duty cycle α is

   (a) 0.2 (b) 0.5 (c) 0.7 (d) 0.8

6. A chopper can be used on

(a) Pulse-width modulation only (b) frequency modulation only
(c) Amplitude modulation only (d) both PWM and FM

7. In the SPWM, the modulating signal is

(a) square (b) sinusoidal
(c) triangular (d) saw-tooth

8. Single phase VSI are mainly used in

(a) power supplies (b) UPS
(c) multilevel configuration (d) all the above

9. Which stage of the power supply uses a Zener as the main component?

(a) rectifier (b) voltage divider

(c) regulator (d) filter

10. The quality of output ac voltage of a cyclo converter is improved with

(a) increase in output voltage at reduced frequency
(b) increase in output voltage at increased frequency
(c) decrease in output voltage at reduced frequency
(d) decrease in output voltage at increased frequency

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Explain briefly about the snubber circuit. (8)

12. With neat sketches, explain the effect of source impedance in the operation of three phase full converter. Derive the expression for average output voltage. (8)

13. Explain the working of Buck-Boost converter with sketch and waveforms and also drive the expression for I_s. (8)

14. With neat sketches describe the working of three-phase inverter using 180 degree mode. (8)

15. Illustrate the following

(i) Single phase to Three phase cyclo converter. (8)