

A

Reg. No. :

--	--	--	--	--	--	--	--	--	--

Question Paper Code: 55301

B.E./B.Tech. DEGREE EXAMINATION, NOV 2018

Fifth Semester

Electrical and Electronics Engineering

15UEE501-POWER ELECTRONICS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The terminals of a power MOSFET are called CO1- R
(a) Emitter, base, collector (b) Source, gate, drain
(c) Source, base, drain (d) Emitter, gate, drain
2. An SCR can be used CO1- R
(a) As static conductor (b) For power control
(c) For speed control of dc shunt motor (d) All of these
3. Unipolar modulation is generally used in CO2- R
(a) AC – AC converters (b) AC – DC converters
(c) DC – AC converters (d) DC – DC converters
4. Single phase VSI is mainly used in CO2- R
(a) Power supplies (b) UPS (c) Multilevel configuration (d) All of these
5. A single-phase full wave mid-point type diode rectifier requires CO3- R
_____ number of diodes whereas bridge type requires _____
(a) 1,2 (b) 2,4 (c) 4,8 (d) 3,2

6. A single-phase full wave rectifier is a CO3- R
 (a) Single pulse rectifier (b) Multiple pulse rectifier
 (c) Two pulse rectifier (d) Three pulse rectifier
7. In a three phase converter, the number of notches per cycle is CO4- R
 (a) One (b) Three (c) Six (d) Nine
8. A single phase full converter gives maximum and minimum output CO4- R
 voltage at firing angles of
 (a) 0 and 180° respectively (b) 180° and 0° respectively
 (c) 0 and 90° respectively (d) 90° and 0° respectively
9. In a single phase full wave ac regulator, the firing angles in the two half CO5- R
 cycles
 (a) Are always equal (b) Are sometimes equal
 (c) Are never equal (d) May be equal or unequal
10. A 3 phase ac regulator uses CO5- R
 (a) 3 thyristors (b) 6 thyristors (c) 9 thyristors (d) 12 thyristors

PART – B (5 x 2= 10Marks)

11. What is holding current of SCR? CO1- R
12. What are the advantages of PWM inverter? CO2- R
13. What is the use of LC filter? CO3- R
14. What is the inversion mode of rectifiers? CO4 -R
15. List out the applications of AC voltage regulator. CO5- R

PART – C (5 x 16= 80Marks)

16. (a) Explain the operation of SCR and explain its switching CO1-App (16)
 characteristics.
- Or
- (b) With neat sketch, explain the operation of Buck converter with CO1- App (16)
 its waveform for the continuous current mode of operation.

17. (a) Construct a 120° mode of operation of three phase inverter and explain the operation with suitable waveform. CO2- App (16)
- Or
- (b) Explain the operation of Unipolar and bipolar PWM inverters. CO2- Ana (16)
18. (a) Examine the working of half wave voltage doublers with neat diagram. CO3- Ana (16)
- Or
- (b) Construct the circuit of three phase full wave diode rectifier. CO3- Ana (16)
19. (a) Examine the effect of source inductance in single phase converter. CO4-Ana (16)
- Or
- (b) Construct the circuit of six pulse bridge converter with RLE load using relevant waveforms. CO4- Ana (16)
20. (a) Construct the circuit of single phase full wave AC voltage controller. CO5- U (16)
- Or
- (b) Explain the concept of TRIAC triggering with neat waveforms. CO5- U (16)

