Q.27 What is the difference between controlled and uncontrolled rectifier. (CO5)

Q.28 Explain the working of Class B chopper. (CO7)

Q.29 Explain the working of a cycloconverter. (CO7)

Q.30 Explain regenerative braking. (CO7)

Q.31 Define commutation. Differentiate between natural and forced commutation. (CO2)

Q.32 Explain briefly VFD. (CO8)

Q.33 Explain the working of Online UPS. (CO6)

Q.34 Explain series connection of SCR. (CO2)

Q.35 Explain the slip power control method of AC drives. (CO8)

## SECTION-D

**Note: Long answer questions. Attempt any two question out of three Questions. (2x10=20)**

Q.36 With a neat sketch explain the VI characteristics of TRIAC. (CO2)

Q.37 Explain the working of a single phase full wave half controlled rectifier. (CO4)

Q.38 Explain the chopper based speed control of DC motor. (CO8)

Note: Course Outcome (CO) mentioned in the question paper is for official purpose only.



No. of Printed Pages : 4
Roll No. .....



**4th Sem./ Electronics & Communication Engineering**
**Subject : Power Electronics**

Time : 3 Hrs. M.M. : 100

## SECTION-A

**Note: Multiple type Questions. All Questions are compulsory. (10x1=10)**

Q.1 Number of PN junction of SCR is (CO1)

a) 1 b) 2

c) 3 d) 4

Q.2 TRIAC behaves as _____ switch (CO1)

a) Mechanical b) Bi-Directional

c) Unidirectional d) None of the above

Q.3 Which power electronic device does not have a gate.

a) IGBT b) DIAC

c) TRIAC d) JFET

Q.4 Triggering Techniques used for DIAC is_____. (CO1)

a) Gate voltage triggering

b) Gate current triggering

c) Break over voltage triggering

d) Break over current triggering

Q.5 Single phase full wave half controlled bridge rectifier consist of _____SCR. (CO4)

a) 1 b) 2

c) 3 d) 4

Q.6 A Chopper is a (CO7)

a) AC to DC converter b) DC to AC converter

c) AC to AC converter d) DC to DC converter

Q.7 Class-B choppers operates in _____ quadrant. (CO7)

a) 1st b) 2nd

c) 3rd d) 4th

Q.8 AUPS with 150AH, 12V battery is connected to a 150W. What will be backup time of the UPS (CO6)

a) 3 hour b) 6 hour

c) 9 hour d) 12 hour

Q.9 Thyristor is a _____device. (CO2)

a) PNP b) PN

c) PNPN d) None of the above

Q.10 Commutation used for AC drives (CO8)

a) Class A b) Class C

c) Class D d) Class F

## SECTION-B

**Note: Objective type questions. All questions are compulsory. (10x1=10)**

Q.11 Speed of motor _____ with the increase in firing angle of a thyristor bridge. (CO8)

Q.12 Relationship between synchronus speed of AC drive and frequency is _____. (CO8)



Q.13 Minimum anode current to maintain thyristor in on state is _____. (CO2)

Q.14 Reverse saturation current of an SCR _____ (increase /decreases) with increase in gate current. (CO2)

Q.15 SCR is a bidirectional device. (True/False) (CO1)

Q.16 The primary source of power in Off-line UPS is battery. (True/False) (CO6)

Q.17 Series inverter uses _____ type of commutation.(CO7)

Q.18 IN a single phase full wave half controlled bridge rectifier a SCR conducts in both the halves of AC supply. (True/False) (CO4)

Q.19 Average output voltage of a single phase full wave fully controlled rectifier is less than that of single phase full wave fully controlled rectifier (True/False) (CO4)

Q.20 Dual converter circuit are designed only for three phase systems. (True/False) (CO7)

## SECTION-C

**Note: Short answer type Question. Attempt any twelve questions out of fifteen Questions. (12x5=60)**

Q.21 Explain gate triggering of SCR. (CO2)

Q.22 Explain the need of heat sinks for power electronics devices. (CO2)

Q.23 Define string efficiency. (CO2)

Q.24 Explain the need of freewheeling diode. (CO4)

Q25 Explain the VI characteristics of UJT. (CO3)

Q.26 Differentiate between series and parallel inverter.(CO7)