

- Q.26 Define controlled rectifier. Draw and explain the circuit diagram of single phase half wave controlled rectifier. (CO-02)

Q.27 Define chopper. List different types of choppers. (CO-03)

Q.28 Write short note on HVDC transmission. (CO-05)

Q.29 Describe dual converter with suitable diagram. (CO-04)

Q.30 Write a short note on DC drive control. (CO-05)

Q.31 Give comparison between online, offline and line interactive UPS. (CO-05)

Q.32 Write down the merits and demerits of series inverter. (CO-04)

Q.33 Explain the function of freewheeling diode. (CO-02)

Q.34 Discuss the applications of cycloconverter. (CO-04)

Q.35 Explain how constant current inverter drive works. (CO-05)

SECTION-D

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

- Q.36 Draw and explain the V-I characteristics of a TRIAC.
(CO-01)

Q.37 Define commutation. Explain different types of
commutation methods. (CO-02)

Q.38 Differentiate between voltage source inverter and
current source inverter. (CO-04)

No. of Printed Pages : 4
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202451

**5th Sem / Mechatronics
Subject:- Power Electronics**

Time : 3Hrs.

M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 An SCR is a _____ layer _____ junction device. (CO-01)
a) 2,3 b) 2,4
c) 4,3 d) 3,4

Q.2 ADIAC is a _____ device. (CO-01)
a) Unidirectional b) Bidirectional
c) Both d) None

Q.3 When an SCR is turned on, the voltage across it is about _____. (CO-02)
a) Zero b) 10V
c) 100V d) 1V

Q.4 If firing angle of an SCR circuit is increased, the output _____. (CO-02)
a) remains the same b) is increased
c) is decreased d) None of the above

Q.5 Which device can be used in a chopper circuit? (CO-03)
a) BJT b) MOSFET
c) GTO d) All of the above

- Q.6 A single phase full wave fully controlled rectifier uses _____. (CO-02)
- 2 SCRs
 - 3 SCRs
 - 4 SCRs
 - 6SCRs
- Q.7 Which of the following is the main advantages of SMPS over liner power supply? (CO-05)
- No transformer is required
 - Higher efficiency
 - No filter required
 - only one stage of conversion
- Q.8 A cycloconverter having positive half of load current is carried by _____. (CO-04)
- negative converter only
 - positive converter only
 - positive and negative converter
 - positive or negative converter
- Q.9 A PWM switching scheme is used in single phase inverters to: (CO-04)
- Reduce the higher order harmonics
 - Minimize the effect of load
 - Reduce the lower order harmonics
 - Reduce the total harmonic distortion
- Q.10 Full form of UPS is _____. (CO-05)
- Universal power supply
 - Unintererruptive power supply
 - Universal power system
 - None of the above

(2)

202451

SECTION-B

- Note:** Objective type questions. All questions are compulsory. (10x1=10)
- Q.11 UJT contains _____ PN junction. (CO-01)
- Q.12 Controlled Rectifier contains only diodes. (T/F) (CO-02)
- Q.13 What is dv/dt triggering? (CO-02)
- Q.14 The duty cycle of chopper is expressed by _____ / (Ton + Toff). (CO-03)
- Q.15 Expand MOSFET. (CO-01)
- Q.16 In a lead acid battery, active material used for positive plate is _____. (CO-03)
- Q.17 List two merits of HVDC system. (CO-05)
- Q.18 F.W.D. in controlled rectifiers, improves power factors. (T/F) (CO-02)
- Q.19 The most suitable motor for control application is _____ motor. (CO-05)
- Q.20 _____ motor is used for elevators. (CO-05)

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 Describe the parallel operation of SCRs. (CO-01)
- Q.22 Explain Gate triggering method of SCRs. (CO-02)
- Q.23 Explain the working of UJT as a relaxation oscillator. (CO-02)
- Q.24 Explain any four specifications of SCR. (CO-01)
- Q.25 Draw the ciruit diagram fan regulator using thyristor. (CO-05)

(3)

202451