No. of Printed Pages : 4 181043/171043
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4th Sem / Eltx
Subject:- Power Electronics

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Number of layers in SCR is (CO1)
a) 1 b) 2
c) 3 d) 4

Q.2 SCR behaves as _____ switch (CO1)
a) Mechanical b) Bi-directional
c) Unidirectional d) None of the above

Q.3 Which among the following is a gate less semicondoctor device (CO1)
a) IGBT b) DIAC
c) TRIAC d) JFET

Q.4 DIAC is turned on using which technique? (CO2)
a) Gate voltage triggering
b) Gate current triggering
c) Breakover voltage triggering
d) Breakover current triggering

Q.5 FWD is used in_____ load (CO4)
a) Resistive b) Inductive
c) Capacitive d) None of the above

Q.6 A cycloconverter 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-A choppers operates in_____ quadrant (CO7)
a) 1^{st} b) 2^{nd}
c) 3^{rd} d) 4^{th}

Q.8 AUPS with 150 AH, 12 V battery is connected to a 300W load. What will be backup time of the UPS (CO7)
a) 3 hour b) 6 hour
c) 9 hour d) 12 hour

Q.9 Snubber circuit is used for (CO2)
a) Triggering a SCR
b) Prevent accidental triggering of SCR
c) Commutation of SCR
d) Prevent accidental commutation of SCR

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 Define valley point. (CO3)

Q.12 SCR is made of germanium. (True/False) (CO1)

Q.13 Expand FWD (CO4)

Q.14 Define PIV (CO2)

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

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

Q.17 Series inverter uses _____type of commutation. (CO7)

Q.18 The value of latching current is less than that of holding current. (True/False) (CO2)

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 single phase system. (True/False) (CO7)

SECTION-C

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

Q.21 Explain any two triggering techniques of SCR (CO)

Q.22 Explain the need of heat sinks for power electronic devices (CO1)

Q.23 Draw and explain the vi characteristics of DIAC (CO2)

Q.24 Explain any two commutation techniques. (CO2)

Q.25 Explain the working of UJT as a relaxation oscillator (CO3)

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

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

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

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

Q.30 Explain regenerative braking (CO7)

Q.31 Compare AC and DC drives (CO8)

Q.32 Explain the construction of TRIAC (CO1)

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

Q.34 Explain the parallel connection of SCR (CO2)

Q.35 Explain the slip power control method of AC drives. (CO2)

SECTION-D

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

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

Q.37 Explain the working of a single phase full wave fully controlled rectifier with inductive load. Also draw the waveform for input and output voltages for the same. (CO4)

Q.38 With a neat sketch explain the speed control of DC motor using a controlled rectifier (CO8)

(**Note:** Course outcome/CO is for office use only)