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**6th Sem / Elect.**

**Subject:- Industrial Electronics and Control of Drives**

Time : 3Hrs.

M.M. : 100

**SECTION-A**

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

- Q.1 A diac has \_\_\_\_\_ pn junctions. (CO1)  
a) Four b) Two  
c) Three d) None of the above
- Q.2 Which of the following is not a characteristic of UJT? (CO1)  
a) Intrinsic stand-off ratio  
b) Negative Resistance  
c) Peak-point voltage  
d) Bilateral conduction
- Q.3 The value of the holding current of an SCR is. (CO1)  
a) equal to one fourth of the value of its latching current  
b) is slightly less than the value of its latching current  
c) is slightly more than the value of its latching current  
d) equal to the value of its latching current
- Q.4 A thyristor (SCR) is a \_\_\_\_\_. (CO1)  
a) Current controlled device  
b) Bilateral device  
c) Voltage controlled device
- Q.5 A freewheeling diode is used in a controlled rectifier circuit in case of (CO2)

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- a) Capacitive load b) Inductive load  
c) Resistive load d) all types of load
- Q.6 Average output of a d.c. chopper is given by (CO3)  
a)  $\frac{V_s}{a}$  b)  $\frac{a}{V_s}$   
c)  $V_s \times a$  d) None of these
- Q.7 A cycloconverter can be. (CO3)  
a) Step down b) Step up  
c) either (a) or (b) d) Neither (a) nor (b)
- Q.8 A d.c. chopper drive controls the voltage across d.c. motor by (CO3)  
a) controlling the input supply  
b) Continuously switching ON and OFF the motor for fixed duration of TON and TOFF respectively  
c) Both (a) and (b)  
d) none of these
- Q.9 SMPS is used for (CO5)  
a) obtaining controlled ac power supply  
b) obtaining controlled dc power supply  
c) storage of dc power  
d) Switch from one source to another
- Q.10 Usually \_\_\_\_\_ batteries are used in the UPS system. (CO5)  
a) NC b) Li-On  
c) Lead acid d) All of the mentioned

**SECTION-B**

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

- Q.11 SCR is unidirectional switch. (True/False) (CO1)

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- Q.12 The value of Latching current is less than Holding current (True/False) (CO1)
- Q.13 Expand SMPS. (CO2)
- Q.14 Draw the symbol of UJT. (CO2)
- Q.15 Class D commutation is also known as \_\_\_\_\_ commutation. (CO2)
- Q.16 What is the purpose of Snubber circuit? (CO2)
- Q.17 The output voltage of a controlled rectifier is maximum when firing angle is \_\_\_\_\_. (CO2)
- Q.18 The output frequency of a cycloconverter can be varied by varying, the \_\_\_\_\_ of thyristors. (CO3)
- Q.19 Write two applications of dual converter. (CO4)
- Q.20 In On-line UPS, the inverter is \_\_\_\_\_ all the time. (CO5)

### SECTION-C

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

- Q.21 Define the following terms related to SCR. (CO3)
- a) Breakover Voltage    b) Peak Reverse Voltage  
c) Holding current        d) String Efficiency
- Q.22 What do you mean by triggering? Explain resistance triggering method of SCR. (CO1)
- Q.23 Draw and explain the circuit of automatic speed control of a d.c. shunt motor. (CO5)
- Q.24 Explain the operation of UJT as relaxation oscillator. (CO2)
- Q.25 Explain the operation of single-phase half wave control rectifier with suitable waveforms. (CO3)

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- Q.26 Explain the working of class -D chopper with neat diagram. (CO3)
- Q.27 Write down the advantages and disadvantages of cycloconverter (CO4)
- Q.28 Write a note on variable Frequency Drive system. (CO5)
- Q.29 Explain, selection of battery size for UPS system. (CO6)
- Q.30 Describe the working of a cycloconverter controlled ac drive. (CO5)
- Q.31 Explain the need and selection of heat sink. (CO2)
- Q.32 Explain the working principle of three phase full wave controlled rectifier. (CO2)
- Q.33 Differentiate between series and parallel inverter. (CO3)
- Q.34 Write short note on On-line UPS. (CO3)
- Q.35 Explain the parallel operation of SCRs. (CO2)

### SECTION-D

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

- Q.36 Explain the construction, working and V-I characteristics of TRIAC. (CO2)
- Q.37 Explain the process of obtaining variable frequency using current source inverter drive. (CO4)
- Q.38 Write short notes on any two of the following (CO3)
- a) Snubber Circuit  
b) Function of freewheeling diode  
c) CVT

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