

[39]

SARDAR PATEL UNIVERSITY V.V.NAGAR

B.Sc.(VI SEM.) ELECTRONICS

19th July-2021 EXAMINATION

SUB. - INDUSTRIAL ELECTRONICS- II

SUB.CODE-US06CELE24

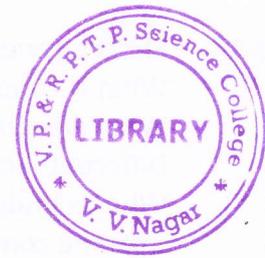
TIME:-10:00 am to 12:00 pm

MARKS-70

Q-1 Choose correct answer

[10]

1. When the chopper is ON the supply terminals are _____ to the load terminals.
(A) Connected (C) Open
(B) Disconnected (D) Shorted
2. Single phase bridge control circuit consists of _____ SCRs.
(A) 2 (C) 6
(B) 4 (D) 1
3. Freewheeling diode used in _____.
(A) phase control circuit (C) Half wave
(B) type A chopper (D) None of above
4. Half control bridge circuit used for _____.
(A) improving power factor (C) increasing controlling efficiency
(B) multiplying power factor (D) None of above
5. For speed reversal of DC motor drives _____ is used.
(A) dual converter (C) full wave phase control circuit
(B) chopper (D) Inverter
6. The load voltage of a chopper can be controlled by varying the _____.
(A) Firing angle (C) both A and B
(B) Duty cycle (D) None of above
7. In current limit control method when the current _____ the upper limit of the chopper is switched off.
(A) equals (C) less than
(B) exceeds (D) None of above
8. _____ is a programmable controller which handles binary inputs and output related by logic statements.
(A) PLC (C) Microcontroller
(B) Microprocessor (D) CNC
9. _____ on a chip is called microprocessor.
(A) ALU (C) Control unit
(B) CPU (D) Register
10. A large value of inductor in bridge circuit results in _____.
(A) continues current (C) discrete current
(B) very high current (D) Zero current



(1)

Q-2 Fill in the blank and True or False

[8]

Fill in the blank

- 1 PLC stands for _____
- 2 Power controlling done by _____ technique.
- 3 Type B chopper consists of _____ chopping network.
- 4 B2 and B6 is _____ type of configuration.

True or False

- 5 PLC system is an analog system.
- 6 Inverter converts AC to DC voltage.
- 7 For speed control of DC motor chopper network is used.
- 8 A chopper is high speed Semiconductor switch.

Q-3 Short answer type question. (any ten)

[20]

1. What is chopper?
2. What do you mean by phase control?
3. Differentiate between Type A and Type B chopper.
4. What is bridge configuration?
5. Give the comparison of B-2 and M-2 connection.
6. Why power controlling is needed?
7. State the principle of step up chopper.
8. What is snubber circuit? Briefly explain.
9. State advantage and disadvantage of full wave bridge control circuit.
10. State application of chopper.
11. What is the program?
12. What is the function of clock in micro computer?



Q-4 Long answer questions(attempt any 4)

[32]

- 1 Draw the circuit diagram of full wave phase control circuit and Discuss its working with waveforms.
- 2 Draw the necessary diagram of dual converter and explain functional mechanism and principle of it.
- 3 Describe the principle of chopper operation with necessary circuit diagram and waveforms.
- 4 Draw circuit diagram of step up chopper and explain its working with its necessary diagrams.
- 5 Discuss in detail the various control strategies of chopper operation.
- 6 Discuss working of First quadrant type A chopper with necessary diagram.
- 7 Draw block diagram of PLC system and discuss function of all section of it.
- 8 Discuss different terms and terminologies used in operation of PLC.

(2)

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