

Con. 10280-13.

MECH

LJ-10595

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Questions No.1 is **compulsory**.
(2) **Figures** to the **right** indicate **full** marks.
(3) Answer any **four** questions from remaining **six**.

1. Any **four** :- 20
- (a) Explain SCR as a rectifier and give significance of free-wheeling diode.
 - (b) What are the open loop configurations of OPAMP? Explain any one with circuit diagram.
 - (c) What are the advantages of electronic control of a motor?
 - (d) What do you mean by cycloconverter? Explain reasons of limited applications of cycloconverters.
 - (e) A SCR circuit has 20 A load current 400 V d.c. voltage and $190\mu\text{s}$ turn off time of the device. Determine the value of the commutating capacitor.
2. (a) Explain construction, working and applications of TRIAC. 10
(b) Explain with the help of block diagrams armature and field control of a d.c. shunt motor. 10
3. (a) What do you mean by commutation of SCR? Classify and explain all commutation circuits of SCR. 10
(b) Explain in detail working of a dual converter circuit. 10
4. (a) Discuss in detail the overload protection of d.c. motor. 10
(b) Explain improved series inverter circuit. 10
5. (a) Explain 555 timer as monostable multivibrator with waveforms. 10
(b) Derive the expression for OPAMP as an integrator. 10
6. (a) Realize all basic gates with NOR gate. 10
(b) What are the advantages of digital systems? Compare different digital expression reduction techniques and explain the effective method. 10
7. (a) Discuss architecture of 8085 microprocessor. 10
(b) Explain in detail interrupts of 8085 microprocessor. 10
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