

17541

21718

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.

Marks

1. (A) Attempt any **THREE** of the following :

12

- (a) Draw symbols and characteristics of MCT and FCT.
- (b) Enlist different types of chopper. State the effect of duty cycle on output voltage of chopper.
- (c) Draw neat labelled circuit diagram of McMurray Bridge Inverter.
- (d) Describe working of servo type AC voltage stabilizer.

(B) Attempt any **ONE** of the following :

6

- (a) Which type of chopper is suitable for Reversible regenerative braking of DC motor ? Justify your answer with neat sketch.
- (b) Describe working of series inverter with neat circuit diagram & waveforms.

2. Attempt any TWO of the following : 16

- (a) How SCR is being protected against high di/dt and high dv/dt ? Explain with neat diagram.
- (b) With the help of neat circuit diagram and waveforms explain working of single phase cycloconverter.
- (c) Draw block diagram of sequential timer for resistance welding. Describe function of each block. List different signals generated.

3. Attempt any FOUR of the following : 16

- (a) Compare Class A and Class B choppers (any four points).
- (b) Describe working of non-isolated SMPS with neat sketch.
- (c) Draw block diagram of Line interactive UPS. Enlist any two advantages and applications.
- (d) State working principle of Resistance welding. Draw SCR line contactor.
- (e) Describe Jones chopper with neat diagram.

4. (A) Attempt any THREE of the following : 12

- (a) Explain Class C chopper with the help of neat diagram & waveforms.
- (b) Compare Relay type and Servo type AC voltage stabilizers (any four points).
- (c) Describe working of SIT with neat sketch.
- (d) Compare series and parallel inverter (any four points).

- (B) Attempt any ONE of the following :** **6**
- (a) Draw static and dynamic equalizing circuits for series connection of SCR. State its need.
 - (b) State different PWM techniques to control output voltage of inverter. Explain any one method.
- 5. Attempt any TWO of the following :** **16**
- (a) Describe working of Isolated SMPS with neat diagram. State any two advantages and disadvantages.
 - (b) What do you mean by Energy storage welding ? With neat block diagram explain capacitor energy storage welding. State any two advantages.
 - (c) State need of AC voltage stabilizer. With neat circuit diagram explain working of SCR type AC voltage stabilizer.
- 6. Attempt any FOUR of the following :** **16**
- (a) Describe working of crowbar protection circuit with neat diagram.
 - (b) Enlist any two applications of stabilizer and SMPS.
 - (c) Compare ONLINE and OFFLINE UPS (any four points).
 - (d) What are different types of Resistance welding and explain any one type.
 - (e) State any four specifications of offline UPS.
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