17541

15116

3 Hours / 100 Marks Seat No. | | | | | | | | |

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.*
(5) Assume suitable data, if ***necessary****.*

Marks

1. a) Answer **any three** : **(3×4=12)**

1) Describe turn ON and turn OFF method for MCT.
2) Describe the effect of duty cycle on chopper output voltage.
3) Draw the circuit diagram of Half bridge inverter with resistive load. Draw its voltage and current waveform.
4) Compare servo type and solid state type stabilizer w.r.t operating principle, efficiency, distortion and applications.

b) Answer **any one** : **(1×6=6)**

1) Describe the working of Class A chopper using SCR with circuit diagram and waveforms.
2) Draw the circuit diagram of push pull inverter with RL load. Describe its working.

2. Answer a**ny two** : **(2×8=16)**

1) Draw 3-SCRs series connections diagram. Describe the roll of static and dynamic equilizing n/w. State the need of series and parallel connection of SCR.
2) Compare ON-line and OFF line UPS w.r.t. Input voltage, DC voltage, output freqn. applications, distortion, output w/f transient recovery.
3) Draw block diagram of sequential timer for resistance welding. Describe the function of each block. List different signals generated.

3. Answer **any four** : **(4×4=16)**

1) Describe how SCR can be protected from over current with suitable labelled diagram.
2) Draw the circuit diagram and explain the working of isolated SMPS.
3) Draw the block diagram of line interactive UPS. Describe its working.
4) Draw and describe the working of Class-C chopper using SCRs with proper w/fs.
5) Draw the block diagram of AC resistance welding and describe it.

P.T.O.

Marks

4. a) Answer **any three** : **(3×4=12)**

1) Describe the operation of Morgan's chopper with ckt diagram.

2) Draw and describe the working of relay type stabilizer with diagram.

3) Describe the need of protection circuits for power devices. List different types of protection circuits.

4) State different PWM techniques used in inverter. Describe any two.

b) Answer **any one** : **(1×6=6)**

1) Describe how output voltage and harmonics can be controlled using PWM control method of inverter ?

2) Draw the circuit diagram of parallel connections of two thyristors and describe with forward characteristics.

5. Answer **any two** : **(2×8=16)**

1) State the need of energy storage resistance welding. Describe the working of capacitor energy storage welding with wave forms.

2) Draw the circuit diagram of phase control method used in AC voltage stabilizer. Describe its operations. List any two adv. and disadv. and any two applications of it.

3) Draw and describe the working of Jones chopper with proper waveforms.

6. Answer **any four** : **(4×4=16)**

1) Draw the constructional diagram of SIT and describe its operation.

2) Draw the Off line UPS and describe the function of each block.

3) With neat diagram describe the principle of resistance welding.

4) Compare half bridge and push pull inverter w.r.t. Use of power device, use of O/P transformer, load voltage and load current.

5) Draw Mc-Murray Bedford inverter with resistive load and describe the working.
