Roll No .....

MEPE - 104

M.E./M.Tech., I Semester

Examination, June 2014

Forced Commutation circuits

Time : Three Hours

Maximum Marks : 70

Note : i) Attempt any five questions.

ii) All questions carry equal marks.

1. Explain the various PWM techniques to control the output of the single phase inverter with circuit diagram and write the expression of voltage. 14

2. Describe the power circuit of a three phase bridge inverter using six thyristor and six diodes with 120° mode of operation and voltage waveforms. Also write phase and line voltage expressions. 14

3. a) Explain the phase sequence control of voltage with diagram. 7

   b) Discuss the reduction of Harmonics in the inverter output voltage by stepped wave inverter method with the help of diagrams. 7

4. Write a short notes on the following :

   a) Switch mode power supplies. 5

   b) Resonant mode of operation of power suppliers. 5

   c) Ferro resonants. 4

5. Explain in brief with diagrams :

   a) R.F. Generators. 5

   b) Laser power supply. 5

   c) High frequency sources for fluorescent lamps. 4

6. a) Explain the induction heating with diagrams and write its applications. 7

   b) Give the four quadrant chopper circuit diagram with its application to D.C. drive. 7

7. a) Explain the with block diagram the power supplies for SRM drive. What do you mean by safe operating area. 7

   b) Discuss the control circuits used for the SRM drive with diagrams. 7

8. Write a short notes on any two of the following : 14

   a) Commutation techniques for the inverters.

   b) Classification of chopper circuits.

   c) Induction welding and melting.

   d) Derive ratings and data sheets.

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