

Ganpat University**B. Tech. Semester: VII (Electrical Engineering) Engineering****Regular Examination November – December 2014****Subject Name with Code: Advanced Power Electronics (2EE 721)****Time: 3 Hours****Total Marks: 70**

- Instruction:**
- 1 Attempt all questions.
 - 2 Figure to the right indicates full marks.
 - 3 Draw appropriate circuit diagrams and waveforms wherever required.

Section - I

- Que. - 1 (a) Discuss Pulse transformer and its application in gate driver circuit. 12
 (b) What do you mean by switched-mode converters? Discuss steady state analysis of buck converter.

OR

- Que. - 1 (a) Discuss any gate driver circuit for MOSFET. 12
 (b) Discuss working principle of CUK converter. Mention its applications.

- Que. - 2 (a) Discuss SEPIC converter with circuit diagram and appropriate waveforms. 11
 (b) What do you mean by PWM? How is it helps in reducing THDs?

OR

- Que. - 2 (a) Explain Buck- Boost converter with circuit diagram and appropriate waveforms: 11
 (b) Discuss SVPWM technique in brief.

- Que. - 3 Attempt any three 12
 (a) Write short notes on unipolar and bipolar Sinusoidal PWM technique.
 (b) Discuss zero crossing detection techniques.
 (c) Compare single PWM technique with multi PWM technique.
 (d) Discuss different schemes for gate firing.

Section -- II

- Que. - 4 (a) What do you mean by load commutation and line commutation? Explain 12
 with suitable example.
 (b) Discuss 5-level flying capacitor multilevel inverter.

OR

- Que. - 4 (a) Explain concept of multilevel inverter. Mention different topologies of 12
 multilevel inverter.
 (b) Discuss 1-ph full bridge thyristor based inverter with RLC under damped load.

- Que. - 5 (a) Discuss 3-ph half bridge rectifier with R-L load. 11
 (b) Discuss 18 pulse converter.

OR

(a) Draw transformer connections for multi pulse converters.

11

(b) Discuss cascaded H bridge 3-level inverter. Mention its advantages and limitations.

(c) Answer any three.

12

(a) Compare multi-pulse and multilevel converters.

(b) Compare CSI with VSI.

(c) Write short notes on diode clamped multi level inverter.

(d) Discuss features and applications of multi pulse converters.

END OF PAPER

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