

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII • EXAMINATION – WINTER 2013

Subject Code: 170906**Date: 03-12-2013****Subject Name: Advanced Power Electronics-I****Time: 10:30 TO 01:00****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain two quadrant ZVS converter. **07**
(b) Compare multilevel inverter with 2-level inverter. Explain flying capacitor based 3-level inverter with neat sketch. **07**
- Q.2** (a) What is difference between isolated and non isolated dc power supply. Explain fly back converter topology with diagram and wave forms. **07**
(b) Discuss working principle of parallel inverter. Give its application area. **07**
- OR**
- (b) Explain operation of ZCS converter with diagram and wave forms. **07**
- Q.3** (a) Discuss operation of cascaded H-bridge multilevel inverter. Give its merits and limitations. **07**
(b) Discuss components of UPS. **07**
- OR**
- Q.3** (a) Discuss operation of diode clamped multilevel inverter. Discuss its merits and limitations. **07**
(b) Explain working of forward converter with diagram and wave forms. **07**
- Q.4** (a) Explain transformer connections of 18-pulse converters. Compare it with 6-pulse converter. **07**
(b) Explain difference in sinusoidal and trapezoidal BLDC machine. **07**
- OR**
- Q.4** (a) Compare multi-pulse converter with multi-level inverter. **07**
(b) Discuss current control of BLDC drive. **07**
- Q.5** (a) Discuss working principle of SRM. Explain block diagram of SRM drive. **07**
(b) Give classification of stepper motor. Discuss stepper motor drive. **07**
- OR**
- Q.5** (a) Discuss difference between on line and off line UPS. **07**
(b) Discuss torque-angle characteristics of stepper motor. **07**
