

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (OLD) EXAMINATION – WINTER 2018****Subject Code: 170906****Date: 15/11/2018****Subject Name: Advanced Power Electronics - I****Time: 10:30 AM TO 01:00 PM****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 operation of 12-pulse converter with circuit diagram and input-output voltage waveforms. **07**
(b) Using single pole multiple throw switch, discuss operation of multilevel inverter. **07**
- Q.2** (a) Compare: Multipulse converter and Multilevel inverter **07**
(b) Explain fly back converter topology with diagram and wave forms. **07**
- OR**
- (b) Discuss push pull converter and its application in dc power supply. **07**
- Q.3** (a) With neat circuit diagram and waveform discuss class E resonant inverter. **07**
(b) Discuss operation of diode clamped multilevel inverter. Discuss its merits and limitations. **07**
- OR**
- Q.3** (a) Draw block diagram of UPS and discuss each block in detailed. **07**
(b) Explain operation of flying capacitor multilevel inverter. **07**
- Q.4** (a) Discuss operation of Cascaded multilevel inverter. **07**
(b) Discuss ZVS converter with necessary circuit diagram and waveforms **07**
- OR**
- Q.4** (a) Explain Δ -Z1 transformer connection used for multipulse converter. **07**
(b) Give analysis of basic series load resonance converter with necessary circuit diagram and waveforms. **07**
- Q.5** (a) Compare: ZVS and ZCS. **07**
(b) Discuss working and operation of Brushless dc motor **07**
- OR**
- Q.5** (a) Discuss Full bridge dc-dc converter with necessary diagram and waveforms. **07**
(b) Write a short note on Variable reluctance Stepper Motor. **07**
