

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA ENGG. - SEMESTER-VIII-EXAMINATION

Subject code: 360906

Date: 11/05/2015

Subject Name: Power Electronics

Time: 10:30 AM TO 1:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered to be Authentic

- Q.1** (a) Draw Symbol, construction and working principle of (i) U J T and (ii) P U T **07**
(b) Explain four modes of operation of TRIAC and draw fan regulator circuit using DIAC and TRIAC and explain its working. **07**
- Q.2** (a) Compare I G B T with S C R. Write the applications of I G B T. **07**
(b) Draw and explain Transistor analogy of S C R. **07**
OR
(b) Draw snubber circuit and explain its working. Also write use of free wheeling diode. **07**
- Q.3** (a) Explain dv/dt ratings and di/dt ratings of S C R. **07**
(b) Explain the need of Heat sinks in S C R circuits. Explain mounting of S C R. **07**
OR
- Q.3** (a) What is forced commutation? Explain all methods with circuit diagram. **07**
(b) Explain basic principle of chopper using S C R and also write the applications of chopper. **07**
- Q.4** (a) Draw and explain Jhones chopper circuit. Compare it with Morgan chopper. **07**
(b) Draw and explain parallel Inverter circuit. **07**
OR
- Q. 4** (a) Compare Transistor Inverter with S C R Inverter. Write in short on P W M method. **07**
(b) Draw block diagram of U P S and label each block. Write the applications of U P S. **07**
- Q.5** (a) Draw and explain single phase to single phase bridge type Cyclo Converter. **07**
(b) Explain speed control of Universal Motor using S C R. **07**
OR
- Q.5** (a) Draw and explain block diagram of Robotics system. **07**
(b) Explain P L L (Phase Locked Loop) control method for speed control of motor. **07**
