

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. Sem. - V - Examination – June- 2011****Subject code: 152405****Subject Name: Power Electronics Application****Date: 30/06/2011****Time: 10:30 am – 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 the theory of induction heating and state its merits & demerits. **07**
(b) Explain the theory of di-electric heating. Discuss various thermal losses which are taken into consideration during di-electric heating. **07**

- Q.2** (a) Discuss various types of electric resistance welding. **07**
(b) Explain the electronic timer which is invariably used in electrical welding. **07**

OR

- (b) Write a comprehensive note on static circuit breaker. **07**

- Q.3** (a) Discuss utilization of non-conventional energy sources in power generation using power electronics. **07**
(b) Write the principle of HVDC transmission. Explain its operation & control technique with block diagram. **07**

OR

- Q.3** (a) Draw & explain electronic fan regulator. **07**
(b) Discuss in brief the various D.C motor drives. **07**

- Q.4** (a) Write a short note on UPS. **07**
(b) Explain cyclo-converter. **07**

OR

- Q.4** (a) Draw & explain the basic power electronic circuit for controlled bridge rectifier and discuss its merits & demerits. **07**
(b) Draw & explain single phase inverter circuit. **07**

- Q.5** (a) List various triggering devices & explain any one in detail. **07**
(b) Prepare a comparative chart for power-BJT & power – MOSFET. **07**

OR

- Q.5** (a) Enlist the various devices which are considered as thyristor family & draw its structural diagram and characteristics. **07**
(b) Enumerate the various fields of applications of power electronics including its advantages. **07**
