

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (OLD) EXAMINATION – WINTER 2018****Subject Code:150203****Date: 16/11/2018****Subject Name: Power Electronics & Control Engineering****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) Compare: Transistor vs SCR **07**  
(b) Explain the principle and operation of SCR with two transistor analogy. **07**
- Q.2** (a) Explain working principle and operation of dielectric heating. **07**  
(b) Explain the basic principle of operation of induction heating and list the advantages of induction heating. **07**
- OR**
- (b) Explain in detail functioning of leading and trailing tube circuits. **07**
- Q.3** (a) Explain construction and V-I characteristics of UJT. **07**  
(b) Explain energy storage welding system. **07**
- OR**
- Q.3** (a) Write a short note on thermocouples and strain gauge. **07**  
(b) Explain the concept of speed control of DC motor using SCRs. **07**
- Q.4** (a) Draw and explain functional block diagram of microprocessor 8085. **07**  
(b) Draw and explain flag register of microprocessor 8085 in detail. **07**
- OR**
- Q.4** (a) Explain successive-approximation type A/D converter and Dual slope A/D converter. **07**  
(b) Explain programmable Logic controller with necessary diagrams. **07**
- Q.5** (a) Draw and explain the pin diagram of microprocessor 8085. **07**  
(b) Explain ladder diagram and ignitron contactors. **07**
- OR**
- Q.5** (a) Draw block diagram of PLC and also explain any one application of it. **07**  
(b) Explain program counter in detail. What is the function of stack pointer in 8085 microprocessor? **07**

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