

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (OLD) EXAMINATION – WINTER 2018****Subject Code:151703****Date: 11/12/2018****Subject Name: Electronics In Industries****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) Discuss the differences between a p-n junction diode and a schottky diode. **07**  
(b) Describe switching characteristics of power BJT. Indicate clearly the turn-on and turn-off time. **07**
- Q.2** (a) Discuss the different types of DIAC's and their working. **07**  
(b) Describe constructional details and working of an enhancement type power MOSFET. **07**
- OR**
- (b) Describe static V-I characteristics of SCR. **07**
- Q.3** (a) Describe constructional details and modes of operation of a TRIAC. **07**  
(b) Describe turn-on and turn-off characteristics of an IGBT. **07**
- OR**
- Q.3** (a) Describe thyristor turn-on methods in detail. **07**  
(b) Describe basic structure and static characteristics of UJT. **07**
- Q.4** (a) Describe overvoltage protection snubber circuit for thyristor. **07**  
(b) Draw and describe jones commutation circuit. **07**
- OR**
- Q.4** (a) With waveforms describe 1-Ø half-wave uncontrolled rectifier with resistive – inductive load. **07**  
(b) A voltage  $220 \sin(100\pi t)$  is applied to a half-wave uncontrolled rectifier with  $10K\Omega$ . Calculate the maximum current, rms current, average current, ac power input, dc power output, and ripple factor. **07**
- Q.5** (a) With waveforms describe full-wave uncontrolled bridge rectifier with resistive load. **07**  
(b) In a full-wave uncontrolled rectifier, load resistance is  $5K\Omega$ . Input voltage to each diode is  $200 \sin(2\pi 50t)$ . Calculate the maximum value of the current, the average current, the rms current, dc power output, input power output, form factor and ripple factor. **07**
- OR**
- Q.5** (a) With waveforms describe 1-Ø half-wave controlled rectifier with resistive load. **07**  
(b) With waveforms describe 1-Ø full-wave controlled bridge rectifier with resistive load. **07**

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