

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VI (NEW) EXAMINATION – WINTER 2020****Subject Code:2161708****Date:22/01/2021****Subject Name:Power Electronics****Time:02:00 PM TO 04:00 PM****Total Marks: 56****Instructions:**

1. Attempt any **FOUR** questions out of **EIGHT** questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Define: **03**
1) Duty cycle
2) Revers recovery time for diode
3) Hold time of filter-rectifier.
- (b) Write a short note on the following terms associated with SCR: **04**
1) Holding current
2) Latching current
- (c) Write a short note on IGBT in detail. **07**
- Q.2** (a) Give comparison between single-phase and three-phase rectifier. **03**
(b) Short note : applications of IGBT and MOSFET **04**
(c) With waveforms explain single-phase half-wave controlled rectifier with resistive load. **07**
- Q.3** (a) What is inverter? Give the difference between oscillators and inverter. **03**
(b) Short note: Quasi square wave inverter. **04**
(c) Explain two-level chopper and two-level inverter using single pole double throw switch. **07**
- Q.4** (a) Write a short note on isolated converter. **03**
(b) Short note: Switching characteristics of transistor. **04**
(c) Write a short note on power MOSFET. **07**
- Q.5** (a) Explain the benefits of isolation between input and output. **03**
(b) Short note: Opto-isolated MOSFET drive circuit. **04**
(c) Write a short note on the operation of step-down converter with waveforms of the various signals of circuit. **07**
- Q.6** (a) Short note : DIAC **03**
(b) Explain in detail the importance of freewheeling DIODE **04**
(c) Draw & explain the V-I characteristics of TRIAC. **07**
- Q.7** (a) Short note: Single phase two level inverter topology. **03**
(b) Short note: Chopper **04**
(c) Explain in detail the Snubber circuit. **07**

- Q.8 (a) Give the classification of diode based on the turn-off time. **03**
(b) Short note: buck-boost converter. **04**
(c) Write a short note on six step inverter. **07**

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