

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- VI (Old) EXAMINATION – WINTER 2019

Subject Code: 162405

Date: 13/12/2019

Subject Name: Power Processing Circuits - I

Time: 02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Notations used have usual meaning.

- Q.1** (a) Explain working of single phase uncontrolled rectifiers with R-L type of load. **07**
(b) Discuss the effect of single phase rectifier on Neutral Currents in 3-Phase supply system. **07**
- Q.2** (a) Explain working of three Phase controlled rectifier with resistive load. Also draw appropriate waveforms. **07**
(b) A single phase full bridge controlled converter is feeding energy to resistive load. Obtain an expression for output voltage and output power in terms of firing angle. **07**
- OR**
- (b) Describe Modelling of a controlled rectifier. **07**
- Q.3** (a) Explain working principle of Buck converter circuit with neat diagram. **07**
(b) Write a short note on Multi quadrant chopper circuit. **07**
- OR**
- Q.3** (a) Discuss operation of Buck-boost converter circuit with appropriate waveforms. **07**
(b) Explain Multiphase chopper circuit with neat sketch and waveforms. **07**
- Q.4** (a) Write a short note on Forward type DC-DC converter. **07**
(b) Explain working of Full bridge type DC-DC converter circuit with waveforms. **07**
- OR**
- Q.4** (a) Explain Operating principle of Cuk converter circuit. **07**
(b) Write a short note on efficiency of linear regulated power supply. **07**
- Q.5** (a) Discuss about the working of Load resonant converter with diagram. **07**
(b) Write a brief note on ZVS clamped voltage type DC-DC converter. **07**
- OR**
- Q.5** (a) Explain basic Concept of ZCS with suitable example of DC-DC converter. **07**
(b) Write a short note on Three terminals IC based linear regulators. **07**
