

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. Branch : Electronics & Telecommunication Engineering

Subject Code & Name: BTETPE604C Power Electronics Semester : VI

Max Marks: 60

Date: 26/08/2022

Duration: 3.45 Hr.

**Instructions to the Students:**

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

	(Level/CO)	Marks
<b>Q.1 Solve Any Two of the following.</b>		
A) What are power devices? Explain with V-I characteristics of SCR.	Level 05	6
B) With the help of circuit diagram and wave forms explain working of single phase half wave converter with resistive load.	Level 05	6
C) Draw vertical section and V-I characteristics of IGBT.	Level 03	6
<b>Q.2 Solve Any Two of the following.</b>		
A) With the help of circuit diagram and wave forms explain working of single phase half controlled bridge rectifier with resistive R load.	Level 05	6
B) Explain with circuit diagram operation of set-up chopper.	Level 05	6
C) A single phase full controlled converter is fed from 230v, 50 Hz supply. The load is highly inductive find the average load voltage and current if the load resistance is 10 ohm and firing angle is $45^{\circ}$ .	Level 04	6
<b>Q.3 Solve Any Two of the following.</b>		
A) What are control strategies? Explain how to control the output voltage of chopper.	Level 06	6
B) Explain the operation of Type A or Type C chopper with circuit diagram and waveforms.	Level 05	6
C) Explain the operation of single phase bridge inverter.	Level 05	6
<b>Q.4 Solve Any Two of the following.</b>		
A) What are the different pulse width modulation techniques used for inverters. Explain any one.	Level 05	6
B) Explain the operation of SMPS.	Level 03	6
C) What is the need of UPS? Explain the UPS system and its component.	Level 05	6

**Q. 5 Solve Any Two of the following.**

**A) With the help of circuit diagram and wave forms explain working of single phase half controlled bridge rectifier with RL load. Level 03 6**

**B) A single phase semi converter is operated from 230V, 50 Hz AC supply. Level 04 6**  
The load is resistive having resistance of 10 ohm and firing angle is  $60^\circ$  calculate.

(i) Average output voltage.

(ii) RMS output voltage.

**C) Explain the operation of Type C chopper Level 05 6**

**\*\*\* End \*\*\***