Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–I&II EXAMINATION – SUMMER 2025

Subject Code:BE01000111 Date:11-06-2025

Subject Name:Basic Electronics 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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	Define the p-n junction diode and draw its characteristics.	**03**
	(b)	Explain the working of a Zener diode as a voltage regulator.	**04**
	(c)	Derive the expressions for load line analysis in a diode circuit.	**07**
Q.2	**(a)**	Draw circuit diagram, waveform of a half-wave rectifier.	**03**
	(b)	Explain one series and one shunt clipping circuits with necessary circuit diagram and waveform.	**04**
	(c)	Explain the working of a full-wave bridge rectifier with necessary circuit diagram and waveform.	**07**
		OR	
	(c)	Explain the working of a full-wave rectifier with a center-tapped transformer.	**07**
Q.3	**(a)**	State the importance of transistor biasing.	**03**
	(b)	Compare between CB, CE, and CC configurations in BJTs with diagram.	**04**
	(c)	Draw and explain CE configuration with input and output Characteristics	**07**
		OR	
Q.3	**(a)**	Derive relation between α and β.	**03**
	(b)	Explain voltage divider biasing with neat diagram.	**04**
	(c)	Draw and explain CB configuration with input and output Characteristics	**07**
Q.4	**(a)**	Describe the operation of a JFET with neat diagram.	**03**
	(b)	Draw MOSFET and describe the working.	**04**
	(c)	Explain Voltage divider Biasing of JFET with diagram.	**07**
		OR	
Q.4	**(a)**	State the advantages of JFETs over BJTs.	**03**
	(b)	Draw symbol of MOSFETS. how enhancement MOSFET is different from depletion MOSFET.	**04**
	(c)	Explain Self Biasing of JFET with diagram.	**07**
Q.5	**(a)**	Illustrate LED.	**03**
	(b)	What is a Schottky diode? Explain its advantages over regular diodes.	**04**
	(c)	Discuss the construction and working of a solar cell. Highlight its applications.	**07**
		OR	
Q.5	**(a)**	Explain Seven segment display.	**03**
	(b)	Explain the working principle of a Tunnel diode.	**04**
	(c)	Discuss the construction and applications of a Varactor diode	**07**

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