Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–I & II EXAMINATION – WINTER 2025

Subject Code:3110016 **Date:19-01-2026**

Subject Name:Basic Electronics

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. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	Draw the vi characteristics for ideal diode and real diode.	**03**
	(b)	Explain the forward and reverse bias of PN junction.	**04**
	(c)	Discuss the operation of full bridge rectifier circuits with voltage and current waveforms.	**07**
Q.2	**(a)**	Draw the circuits for clipping the voltage waveforms.	**03**
	(b)	Explain the characteristics of Zener diode.	**04**
	(c)	Write short not on bipolar junction transistor (BJT).	**07**
		OR	
	(c)	Explain the operation of transistor as amplifier in Common Emitter(CE) configuration.	**07**
Q.3	**(a)**	Write key factors to achieve faithful amplifications.	**03**
	(b)	Discuss the importances of operating points in transistor.	**04**
	(c)	Discuss the load line analysis of transistor.	**07**
		OR	
Q.3	**(a)**	What is a stability factor?	**03**
	(b)	Explain the voltage divider biasing.	**04**
	(c)	Discuss the construction and operation of Schottky diode.	**07**
Q.4	**(a)**	What are the roles of coupling capacitor and bypass capacitor in amplifier circuits?	**03**
	(b)	Discuss the operation of common collector circuits analysis.	**04**
	(c)	Shows parametric comparisons between of CE, CB and CC.	**07**
		OR	
Q.4	**(a)**	Draw the circuits of seven segment LED display.	**03**
	(b)	What are the differences between FET and BJT?	**04**
	(c)	Write short note on MOSFET.	**07**
Q.5	**(a)**	Prepare the truth table for three basic logic gates.	**03**
	(b)	Explain the working principle of a field effect transistor (FET).	**04**
	(c)	Discuss the resistor transistor logic (RTL)circuits for basic gates.	**07**
		OR	
Q.5	**(a)**	Draw the circuit diagram of OR gate with diodes.	**03**
	(b)	Show the implementation of OR gate logic with use of NAND gate.	**04**
	(c)	Discuss the applications of EX-OR and EX-NOR gate with truth tables.	**07**