Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE –SEMESTER 1&2(NEW SYLLABUS)EXAMINATION- WINTER 2018

Subject Code: 3110016 Date: 08-01-2019

Subject Name: basic electronics

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.**

			Marks
Q.1	**(a)**	Explain V-I characteristic of tunnel diode.	**03**
	(b)	What is zener breakdown? What is avalanche breakdown? Compare both the type of breakdown.	**04**
	(c)	Write a short note: V-I characteristic of P-N junction diode.	**07**
Q.2	**(a)**	Design and explain basic NAND gate using DTL logic.	**03**
	(b)	Explain following gate using their truth table, logic symbol and equation. Ex-NOR, NAND, NO	**04**
	(c)	Draw and Explain bridge rectifier. Explain advantage and disadvantage of bridge rectifier over full wave rectifier.	**07**
		OR	
	(c)	Write a short note: Biased clipper circuit.	**07**
Q.3	**(a)**	Derive the relation between current gain **α** and **β**	**03**
	(b)	What is DC load line? Explain with necessary diagram.	**04**
	(c)	Draw and explain input and output characteristic of transistor in common emitter configuration.	**07**
		OR	
Q.3	**(a)**	What is stability factor? Explain.	**03**
	(b)	Give comparison between CE, CB and CC configuration of transistor.	**04**
	(c)	What are the different method for biasing the transistor. Explain any two method with necessary circuit diagram.	**07**
Q.4	**(a)**	Why biasing circuits are required?	**03**
	(b)	Explain why NAND and NOR gate are called universal gate?	**04**
	(c)	Explain application of transistor as a switch.	**07**
		OR	
Q.4	**(a)**	List out the salient feature of emitter follower.	**03**
	(b)	Explain various properties of CB amplifier.	**04**
	(c)	Draw and explain the transistor a.c. equivalent circuit.	**07**
Q.5	**(a)**	Give comparison of BJT and JFET.	**03**
	(b)	Draw and explain the self bias circuit of FET.	**04**
	(c)	Draw and explain various characteristic of JFET	**07**
		OR	
Q.5	**(a)**	What are the advantage of N-Channel MOSFET over P-Channel MOSFET.	**03**
	(b)	Explain the application of FET as a buffer amplifier.	**04**
	(c)	Write a short note: E-Type MOSFET	**07**