Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III EXAMINATION – SUMMER 2015

Subject Code:131101 **Date:**02/**06/2015**

Subject Name: Basic Electronics

Time: 02.30pm-05.00pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain energy band diagram of insulator, semiconductor and conductor.	**07**
	(b)	Explain Hall Effect.	**07**
Q.2	**(a)**	Explain (1) Tunnel Diode (2) Photodiode (3)LED.	**07**
	(b)	Explain V-I characteristic of p-n junction.	**07**
		OR	
	(b)	Explain potential variation within graded semiconductor.	**07**
Q.3	**(a)**	Compare half wave rectifier with full wave rectifier.	**07**
	(b)	A 230V,50Hz.a.c voltage is applied to the primary of a 5:1 step down transformer which is used in a bridge rectifier having a load resistor of value 500Ω.Assuming the diode to be ideal, Determine the following: (1) d.c output voltage (2) d.c. power delivered to load (3)PIV of each diode (4) output frequency.	**07**
		OR	
Q.3	**(a)**	Explain all types of clippers with examples.	**07**
	(b)	A half wave rectifier is utilized to supply 20V d.c to a resistive load of 400Ω.The diode used in half wave rectifier has a forward resistance of 40Ω.Determine the maximum value of the a.c voltage required at the input.	**07**
Q.4	**(a)**	Compare CB/CE/CC configurations	**07**
	(b)	Why bias stabilization is required in transistor? Explain any one method of transistor biasing.	**07**
		OR	
Q.4	**(a)**	Write down typical h-parameter values for CE/CB/CC configurations.	**07**
	(b)	Explain Miller's theorem.	**07**
Q.5	**(a)**	Compare JFET with MOSET	**07**
	(b)	Compare class A, class B, class C and class AB amplifiers	**07**
		OR	
Q.5	**(a)**	Compare enhancement type MOSFET with depletion type MOSFET	**07**
	(b)	For N-channel JFET,I_{DSS}=20mA,V_p=-8V, and g_{mo}=5000µs.Find the values of the drain current and trans conductance at V_{gs}=-4V	**07**

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