Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC SEM-I Examination-Dec-2011

Subject code: X11101 **Date: 21/12/2011**
Subject Name: Basic Electronics
Time: 10.30 am -1.00 pm **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)**	Describe the hall effect. Which properties of a semiconductor are determined from hall effect experiment?	**07**
	(b)	Draw the circuit of CE configuration of transistor. Explain input and output characteristics.	**07**
Q.2	**(a)**	Explain electrical properties of Germanium and Silicon (conductivity, mobility and the energy gap).	**07**
	(b)	Draw the circuit diagram of full wave bridge rectifier and give its input and output wave forms. Also derive expression for the D.C. current.	**07**
		OR	
	(b)	Explain Miller's theorem.	**07**
Q.3	**(a)**	Draw circuits of an idealized class-B push-pull power amplifier and explain its operation with the help of necessary waveforms.	**07**
	(b)	Explain transistor as a switch with its circuit diagram.	**07**
		OR	
Q.3	**(a)**	Discuss h-parameter equivalent circuit for transistor in CE configuration.	**07**
	(b)	What is biasing? Why biasing is required for transistor? List biasing methods for transistor.	**07**
Q.4	**(a)**	Draw symbol and explain briefly the working principle of Tunnel diode.	**07**
	(b)	Give construction details of JFET and its characteristics.	**07**
		OR	
Q.4	**(a)**	Draw symbol and explain principle of photo diode.	**07**
	(b)	Explain CC configuration of transistor with its input and output characteristics.	**07**
Q.5	**(a)**	Derive relation between α_{dc} and β_{dc} of a transistor.	**07**
	(b)	Explain the operation of emitter follower. Why it is known as emitter follower?	**07**
		OR	
Q.5	**(a)**	Draw and explain Positive Clipping circuit with input and output waveforms.	**07**
	(b)	Write short note on thermal stability.	**07**

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