Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC SEM-III Examination-Dec-2011

Subject code: X30901 **Date: 13/12/2011**

Subject Name: Basic Electronics

Time: 2.30 pm -5.00 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)	Explain Zener diode characteristics. How it can be worked as a zener regulator?	**07**
	(b)	Explain the construction and working of PNP & NPN transistor with its majority and minority carrier current.	**07**
Q.2	(a)	Derive relation between alpha and beta in the transistor amplifier. What is significance of them?	**07**
	(b)	Explain the load line analysis of diode circuit. Also explain ideal characteristics of diode.	**07**
		OR	
Q.2	(a)	Polarity marking in NPN & PNP transistor for three different characteristics region.	**07**
	(b)	Explain the fixed bias method? What are the merits and demerits of this method?	**07**
Q.3	(a)	Explain the working and characteristics of photo transistor. Give one of the applications of it.	**07**
	(b)	Derive the equitation for ripple factor in case of full-wave rectifier with inductor filter.	**07**
		OR	
Q.3	(a)	Explain half wave voltage doubler circuit using diode.	**07**
	(b)	What is the effect of temp. rise in case of transistor? Explain the thermal runaway of transistor.	**07**
Q.4	(a)	Give comparison between half wave, full wave with centre tape and bridge rectifier.	**07**
	(b)	Explain full wave bridge rectifier? Draw its output wave form with inductor filter?	**07**
		OR	
Q. 4	(a)	Explain working of transistorized series regulator with circuit diagram.	**07**
	(b)	Explain construction and working of FET. Give comparison between FET and transistor.	**07**
Q.5	(a)	Explain construction and working of MOSFET.	**07**
	(b)	Explain complimentary push-pull amplifier.	**07**
		OR	
Q.5	(a)	What is significance of stability of operating point in case of transistor amplifier?	**07**
	(b)	What is the stability factor? Derive its equation against the change in Ico, V_{BE}, and beta.	**07**