Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEMESTER - V - EXAMINATION – WINTER 2013

Subject Code: 151006 **Date: 09/12/2013**

Subject Name: Applied Electronics

Time: 10.30 am - 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.**

Q.1	**(a)**	Define the following terms: CMRR, Slew rate, Transducer, Photoemission effect, Intrinsic standoff ratio(η), Duty cycle, Multiplexer	**07**
	(b)	Draw and Explain the working of SMPS with required block diagram circuits and wave forms. Enlist differences between linear and switch mode regulator.	**07**
Q.2	**(a)**	What are the advantages of close loop configuration? Derive expression of close loop gain for Non-inverting configuration of Op-Amp.	**07**
	(b)	An op-Amp is used in inverting mode with R_1=2KΩ, R_F=30KΩ, Vcc=±15V. Calculate the output voltage for the given inputs:1) V_{in}=100mV 2) V_{in}= 3V.	**07**
		OR	
	(b)	Draw and explain Block diagram and voltage transfer characteristics of an Ideal Op-amp. What is virtual ground concept?	**07**
Q.3	**(a)**	Describe the steps to convert an Astable multivibrator in a square wave oscillator using a diode.	**07**
	(b)	State different types of temperature tranducers. Explain them in brief.	**07**
		OR	
Q.3	**(a)**	Derive the expression of pulse width for monostable multivibrator. Design a monostable multivibrator using IC 555 for Vcc=12V and pulse width of 1msec.	**07**
	(b)	Write a short note on piezoelectric transducer.	**07**
Q.4	**(a)**	What is Liquid Crystal Display? State and explain different types of LCD.	**07**
	(b)	Compare SCR with triac. Explain SCR with all necessary diagrams.	**07**
		OR	
Q.4	**(a)**	Explain the optocoupler/Isolator in details. Also explain one application.	**07**
	(b)	Explain the working of DIAC(Diode A.C. Switch) with equivalent circuit and I-V characteristics of it.	**07**
Q.5	**(a)**	Explain the principle of Digital Storage Oscilloscope with block diagram.	**07**
	(b)	What is fuzzy logic? Explain CD technology with block diagram.	**07**
		OR	
Q.5	**(a)**	What is sequential circuit? Compare sequential circuit with combinational circuit. Explain A/D converter.	**07**
	(b)	Explain the 8051 architecture in detail	**07**

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