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

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V- EXAMINATION – SUMMER 2016

Subject Code: 151006 **Date: 17/05/2016**

Subject Name: Applied Electronics (Institute Elective - II)

Time: 02:30 PM to 05:00 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)**	Draw and explain Block diagram and voltage transfer characteristics of an Ideal Op-amp. What is virtual ground concept?	**07**
	(b)	What is Ideal Voltage source? Also explain factors affecting the voltage regulation with block diagram of Shunt voltage regulator.	**07**
Q.2	**(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)	What is TRIAC? Draw and explain the construction of TRIAC? Also explain its operation.	**07**
		OR	
	(b)	Explain the working of DIAC(Diode A.C. Switch) with equivalent circuit and I-V characteristics of it.	**07**
Q.3	**(a)**	Explain the principle of Digital Storage Oscilloscope with block diagram.	**07**
	(b)	Explain fuzzy logic system to improve the performance of washing machine in detail.	**07**
		OR	
Q.3	**(a)**	(i) Enlist differences between linear and switch mode regulator.	**04**
		(ii) Compare Photovoltaic Sensors with Photoconductive sensors.	**03**
	(b)	What is transducer? Give characteristics of transducer and explain it. Also List the factors affecting the selection of transducer and explain it.	**07**
Q.4	**(a)**	What is Digital Multi Meter? Draw and Explain the block diagram of DMM. Also state the advantages of DMM.	**07**
	(b)	Explain Analog to digital converter with necessary circuit diagram.	**07**
		OR	
Q.4	**(a)**	What is sequential circuit? Explain any one sequential circuit with necessary circuit diagram in detail.	**07**
	(b)	Explain characteristic of UJT. Discuss UJT as a Relaxation Oscillator with circuit and waveforms.	**07**
Q.5	**(a)**	What is combinational circuit? Explain any one combinational circuit with necessary circuit diagram in detail.	**07**
	(b)	Explain the principal and working of Thermocouple. Compare it with RTD.	**07**
		OR	
Q.5	**(a)**	Explain architecture of 8051 with block diagram.	**07**
	(b)	Explain the optocoupler/Isolator in details. Also explain one application.	**07**

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