Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III(OLD) • EXAMINATION – WINTER 2016

Subject Code:130902 Date:02/01/2017

Subject Name:Analog and Digital Electronics

Time:10:30 AM to 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)**	List and Discuss all ideal characteristics of an Op Amp.	**07**
	(b)	Explain block diagram of OP-AMP. Explain function of each block.	**07**
Q.2	**(a)**	What is CMRR? What is effect of frequency on CMRR?	**07**
	(b)	Enlist the applications of 555 timer in astable and monostable mode.	**07**
		OR	
	(b)	Explain integrator with its frequency response.	**07**
Q.3	**(a)**	Draw functional block diagram of IC 555 & discuss function of each pin.	**07**
	(b)	Realize EX-OR and NOR gate using NAND gate.	**07**
		OR	
Q.3	**(a)**	Explain principle of Basic Comparator. Describe operation of Schmitt Trigger with necessary diagram.	**07**
	(b)	Minimize the following Boolean expression using K-map and realize it using AOI gates. $Y = \Sigma m (0,1,5,9,13,14,15) + d(3,4,7,10,11)$	**07**
Q.4	**(a)**	Explain edge triggered D Flip flop with its truth table. Also state its applications.	**07**
	(b)	Explain RTL and I^2R logic families.	**07**
		OR	
Q.4	**(a)**	Describe operation of D/A converter with binary-weighted resistors	**07**
	(b)	Define encoders, decoders, multiplexer and de-multiplexer. Give application of each.	**07**
Q.5	**(a)**	Design BCD to seven segment decoder for common anode display.	**07**
	(b)	Write down modes of operation of shift register. Explain any one mode of operation in detail.	**07**
		OR	
Q.5	**(a)**	What is PLL? Discuss different applications of PLL in detail.	**07**
	(b)	Explain the use of op-amp as a zero crossing detector with neat sketch.	**07**

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