Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (NEW) EXAMINATION – WINTER 2021

Subject Code:3130907 Date:21-02-2022

Subject Name:Analog & 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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Define following a) CMRR b)PSRR c)Input Offset voltage	**03**
	(b)	What is cross over distortion in power amplifier?	**04**
	(c)	Draw and explain the equivalent circuit of OP-Amp.	**07**
Q.2	**(a)**	Define Slew Rate .Also mention about causes of slew rate.	**03**
	(b)	Draw the basic Integrator using OP-Amp. Derive the output equation of Integrator.	**04**
	(c)	Derive an expression for the output of a Inverting Summing amplifier with three input and Average amplifier.	**07**
		OR	
	(c)	Discuss the classification of active filter and explain the frequency response of each type.	**07**
Q.3	**(a)**	Simplify $\bar{A}BC\bar{D} + BC\bar{D} + B\bar{C}\bar{D} + B\bar{C}D$	**03**
	(b)	Realize expression using minimum NAND gates only $Y = A\bar{B} + A\bar{C} + C + AD + A\bar{B}C + ABC$	**04**
	(c)	For the following function implement the SOP and POS circuit $F(A,B,C,D) = \Sigma m(2,3,5,7,12) + \Sigma d(6,13,14,15)$	**07**
		OR	
Q.3	**(a)**	Simplify the Boolean function with K map $F(a, b, c, d) = \Sigma(0,1,2,4,5,6,8,9,12,13,14)$	**03**
	(b)	Implement the following function using 8:1 Multiplexer. $F(A,B,C,D) = \bar{A}B\bar{D} + ACD + \bar{B}CD + \bar{A}\bar{C}D$	**04**
	(c)	Explain Half Adder circuit .Explain Full adder circuit with the help of two Half adder.	**07**
Q.4	**(a)**	Compare RC phase shift and Wien bridge oscillator.	**03**
	(b)	Write a short note on Precision rectifier.	**04**
	(c)	Explain the working of Zero crossing Detector.	**07**
		OR	
Q.4	**(a)**	Define following a) Attenuation b) Pass Band c) Cut of frequency	**03**
	(b)	Draw the peak detector circuit using Op-amp and explain it's operation.	**04**
	(c)	Draw and explain the block diagram of basic three terminal IC Regulator.	**07**
Q.5	**(a)**	Explain the different types of triggering methods used for flip flops.	**03**
	(b)	Write a note on serial in parallel out operation of shift register.	**04**
	(c)	Explain the Binary Weighted register technique of D/A converter.	**07**
		OR	

Q.5	**(a)**	Define following specification of DAC a) Accuracy b) Resolution c) Setting time	**03**
	(b)	Which are the different methods for A/D conversion ?	**04**
	(c)	Draw and explain the working of 4 bit Ring counter.	**07**

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