Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (New) EXAMINATION – WINTER 2018

Subject Code:2130902 Date:01/12/2018

Subject Name:Analog 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.**

			MARKS
Q.1	**(a)**	Why is the effect of negative feedback on bandwidth?	**03**
	(b)	Classify power amplifiers. Write note on Class AB push pull amplifier.	**04**
	(c)	Draw and explain biasing circuits for JFET.	**07**
Q.2	**(a)**	Define following terms. (1) CMRR (2) PSRR (3) Slew Rate	**03**
	(b)	Distinguish between Ideal and Practical OP-AMP.	**04**
	(c)	Draw and explain block diagram of a typical OP-AMP.	**07**
		OR	
	(c)	Draw the circuit of basic integrator using OP-AMP. What are the problems associated with this configuration? How they are overcome?	**07**
Q.3	**(a)**	Define following parameter of an OP-AMP, (1) Input bias current (2) Input offset current.	**03**
	(b)	How OP-AMP can be used as a difference amplifier?	**04**
	(c)	Derive an expression of voltage gain for closed loop non-inverting OP-AMP.	**07**
		OR	
Q.3	**(a)**	How OP-AMP can be used as a peak detector.?	**03**
	(b)	Discuss the requirement of instrumentation amplifier along with its applications.	**04**
	(c)	Draw the circuit diagram to generate triangular waveform using OP-AMP.	**07**
Q.4	**(a)**	Explain application of OP-AMP as a zero crossing detector.	**03**
	(b)	Explain the working of RC Phase shift oscillator using OP-AMP.	**04**
	(c)	Explain the working of monostable multivibrator using IC-555.	**07**
		OR	
Q.4	**(a)**	Explain advantages and application of OP-AMP based Wien bridge oscillator.	**03**
	(b)	Explain voltage to current converter circuit using OP-AMP.	**04**
	(c)	Explain the operation of voltage controlled oscillator using functional block diagram.	**07**
Q.5	**(a)**	Write merits of active filters over passive filters.	**03**
	(b)	Draw the frequency response of first order butterworth high pass filters.	**04**
	(c)	Explain operation of PLL with basic blocks.	**07**
		OR	
Q.5	**(a)**	What are the basic design consideration for designing regulated power supplies?	**03**
	(b)	Draw and explain block diagram of LM-337 along with its applications.	**04**
	(c)	Draw and explain circuit diagram of first order butterworth low pass filter using OP-AMP.	**07**

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