

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
