

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV(NEW) – EXAMINATION – SUMMER 2019

Subject Code:2141706

Date:20/05/2019

Subject Name: Analog Signal Processing

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.

		MARKS
Q.1	(a) Draw and Explain equivalent circuit of the Op-Amp.	03
	(b) Explain the pin diagram of IC 741 Op-Amp.	04
	(c) Derive the equation of gain for the voltage series feedback Operational Amplifier with its circuit diagram.	07
Q.2	(a) Define following terms with respect to Op-Amp: (1). Output voltage swings (2). Input Bias current (3). Input offset voltage	03
	(b) Draw the block diagram representation of feedback configuration.	04
	(c) Derive the equation of gain for the Differential amplifier with one Op-Amp with circuit diagram.	07
	OR	
	(c) Explain offset voltage compensating network with necessary circuit diagram.	07
Q.3	(a) Explain Current to Voltage converter using Op-Amp.	03
	(b) Explain Voltage follower circuit using Op-Amp.	04
	(c) Explain Non Inverting summing Amplifier using Op-Amp and also draw the circuit of averaging amplifier for the Non Inverting configuration.	07
	OR	
Q.3	(a) Explain Negative Clipper circuit using Op-Amp.	03
	(b) Explain Schmitt trigger circuit using Op-Amp.	04
	(c) Explain Practical Differentiator circuit using Op-Amp with its frequency response.	07
Q.4	(a) Explain Small signal Half Wave Rectifier using Op-Amp,	03
	(b) Draw and explain Voltage limiting circuit using Op-Amp.	04
	(c) Explain F to V Converter using 9400 IC.	07
	OR	
Q.4	(a) Draw and explain Saw tooth wave generator using Op-Amp.	03
	(b) Explain Phase shift Oscillator using Op-Amp.	04
	(c) Explain Monostable Operation using 555 timer using its internal block diagram.	07
Q.5	(a) Draw and explain Notch filter in brief.	03
	(b) Explain Programmable gain Amplifier	04
	(c) Draw and Explain first order butter worth active low pass filter using Op-Amp with its circuit diagram, transfer function and cutoff frequency.	07
	OR	
Q.5	(a) Explain binary weighted DAC in Brief.	03
	(b) Explain chopped stability Amplifier	04
	(c) Explain three op amp instrumentation amplifier with its circuit and gain equation derivation.	07
