Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

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

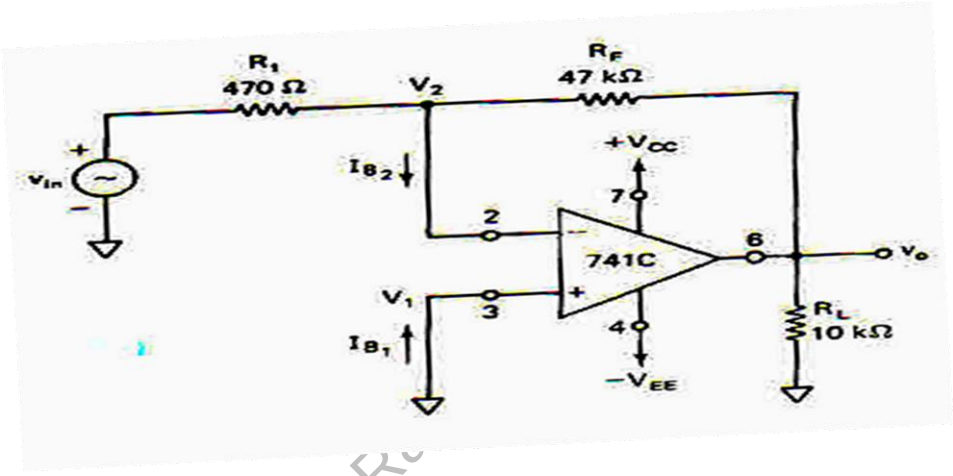
Subject Code: 2130305 **Date: 11/06/2019**

Subject Name:Analog Circuits-I

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)**	Enlist the ideal characteristics of Op Amp.	**03**
	(b)	Draw the differential amplifier with one op amp and derive equation of gain.	**04**
	(c)	What is input offset voltage? Explain offset-voltage compensating network design.	**07**
Q.2	**(a)**	What is CMRR and SVRR?	**03**
	(b)	Explain I to V converter with necessary circuit and equations.	**04**
	(c)	 For inverting amplifier shown in above figure, determine the maximum possible output offset voltage due to 1. Input offset voltage, 2. Input bias current. What value of ROM is needed to reduce the effect of input bias current?	**07**
		OR	
	(c)	What is the effect of negative feedback on Op Amp? Discuss various type of feedback.	**07**
Q.3	**(a)**	Discuss the ideal diode and it's the second approximation,.	**03**
	(b)	Draw the circuit of summing amplifier and derive equation of gain.	**04**
	(c)	Draw the circuit of Integrator and Explain its frequency response.	**07**
		OR	
Q.3	**(a)**	Draw the circuit of negative clampers and negative clipper.	**03**
	(b)	Compare full wave and bridge rectifier.	**04**
	(c)	Draw the circuit of instrumentation amplifier and derive equation of gain.	**07**
Q.4	**(a)**	Draw a circuit of non-inverting amplifier with gain of 11.	**03**
	(b)	Explain voltage divider bias of a BJT circuit.	**04**
	(c)	Explain the circuit of peak detector.	**07**

OR

Q.4	**(a)**	Give basic difference between BJT and FET.	**03**
	(b)	Draw and explain detail construction of D MOSFET.	**04**
	(c)	Explain Transistor as a switch with necessary circuit and equations.	**07**
Q.5	**(a)**	Draw the circuit of op-amp based Zero crossing detector with suitable input output waveform.	**03**
	(b)	Draw and explain VI characteristics of PN junction diode.	**04**
	(c)	Explain JFET based amplifier.	**07**

OR

Q.5	**(a)**	Explain basic principle of Oscillator.	**03**
	(b)	Draw the circuit of Schmitt trigger and explain its working.	**04**
	(c)	Design a Wein bridge oscillator of 965 Hz.	**07**

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