Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III (New) EXAMINATION – WINTER 2019

Subject Code: 3130305 **Date: 30/11/2019**

Subject Name: Advanced Electronics

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 characteristics of Op-Amp.	**03**
	(b)	Explain Op-Amp 741 package Style & pin diagram.	**04**
	(c)	Design amplifier circuits with following gain and draw output wave form for input Vin= +1 volt (1) -5 (2) 2	**07**
Q.2	**(a)**	Draw & Explain open loop inverting configuration of op-amp.	**03**
	(b)	Draw and explain V to I converter circuit.	**04**
	(c)	Design a circuit which can generate output voltage $V_0 = -2\,V_1 + \frac{3}{2}V_2$ Where V_1 and V_2 are the input voltage.	**07**
		OR	
	(c)	Explain Basic Operation of SCR with necessary diagram.	**07**
Q.3	**(a)**	Give colors of Op-Amp noise with its frequency content.	**03**
	(b)	Draw the circuit of the differentiator and its frequency response.	**04**
	(c)	Draw and explain integrator circuit. What is the problem of integrator circuit? How it can be solved?	**07**
		OR	
Q.3	**(a)**	Draw the circuit of Instrumentation amplifier.	**03**
	(b)	Justify "Transistor as a switch".	**04**
	(c)	Explain common base configuration of transistor with necessary equations.	**07**
Q.4	**(a)**	Enlist type of Op-Amp noise. Explain any one type.	**03**
	(b)	Draw a circuit of wide band pass filter and its frequency response.	**04**
	(c)	Design a low-pass filter at a cutoff frequency of 1 KHz with passband gain of 1	**07**
		OR	
Q.4	**(a)**	Explain positive fixed voltage regulator IC.	**03**
	(b)	Draw a circuit of wien bridge oscillator.	**04**
	(c)	Explain 555 times as a monostable multivibrator.	**07**
Q.5	**(a)**	Explain basic operation of DIAC and TRIAC.	**03**
	(b)	Explain the basic structure, operation and breakover characteristics of schockley diode.	**04**
	(c)	Explain operation of Class A amplifier.	**07**
		OR	
Q.5	**(a)**	Explain Passive RC high pass filter.	**03**
	(b)	Explain the working of Electromagnetic relay with schematics.	**04**
	(c)	Design a phase shift oscillator for frequency 2KHz.	**07**

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