Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2142405 Date:19/05/2018

Subject Name:Analog Electronics and Its Applications

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.**

Q.1	**(a)**	What are the significances of DC load line characteristics?	**03**
	(b)	Draw and explain the equivalent circuit of OPAMP.	**04**
	(c)	Discuss application of diode as half wave rectifier with filter for resistive load. Draw necessary waveforms and figures.	**07**
Q.2	**(a)**	Draw the hybrid-pi model for a transistor in CE configuration.	**03**
	(b)	Draw and explain input and output characteristic of CC configuration of BJT.	**04**
	(c)	Define: (1) CMRR (2) Input offset voltage (3) Slew rate (4) Input bias current (5) PSRR (6) Thermal drift (7) Bandwidth	**07**
		OR	
	(c)	Explain class AB amplifier along with necessary figures, waveforms and applications.	**07**
Q.3	**(a)**	Discuss the block diagram of OPAMP.	**03**
	(b)	Explain the series voltage regulator with foldback current limiting circuit.	**04**
	(c)	Explain inverting type summing amplifier having three input voltage source.	**07**
		OR	
Q.3	**(a)**	Draw and explain V to I converter with floating load.	**03**
	(b)	Explain square wave generator with diagram.	**04**
	(c)	Explain ideal integrator and derive the output voltage equation.	**07**
Q.4	**(a)**	Explain the principal of oscillator.	**03**
	(b)	Discuss zero crossing detector circuit.	**04**
	(c)	Brief switched capacitor circuit and explain MF5 switched capacitor filter.	**07**
		OR	
Q.4	**(a)**	Differentiate active and passive filter.	**03**
	(b)	Explain the frequency response of high pass filter.	**04**
	(c)	Discuss wien bridge oscillator with necessary diagram and waveform.	**07**
Q.5	**(a)**	Compare TTL and RTL.	**03**
	(b)	Draw the constructional diagram of AND gate, OR gate, NOT gate using discrete components like diode, resistor, transistor etc.	**04**

	(c)	Explain with neat sketches F/V converter.	**07**

OR

Q.5	**(a)**	Draw the diagram of first and second order butterworth filter.	**03**
	(b)	Explain the block diagram of V/F converter.	**04**
	(c)	Discuss the monostable mode of 555 timer with necessary diagram and waveform.	**07**

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