Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2142405 **Date:28/11/2018**

Subject Name:Analog Electronics and Its Applications

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.**

Q.1	**(a)**	Define followings. (1) PIV (2) Q- point (3) Noise Figure.	**03**
	(b)	Define the following. (i) CMRR (ii) PSRR (iii) Slew Rate (iii) Noise	**04**
	(c)	Draw an IC OP Amp in block diagram form. Identify each stage by function.	**07**
Q.2	**(a)**	Draw Equivalent Circuit of OP-amp.	**03**
	(b)	Enlist Ideal Op-Amp characteristics.	**04**
	(c)	Compare CE, CB, and CC configuration in tabular form.	**07**
		OR	
	(c)	Draw & Explain Full wave Bridge Rectifier circuit. Also derive expression for output frequency.	**07**
Q.3	**(a)**	State the advantages of TTL.	**03**
	(b)	Explain the construction of AND logic gates using discrete components like diode, resistor, Transistor etc.	**04**
	(c)	Explain working of successive approximation ADC with suitable numerical example.	**07**
		OR	
Q.3	**(a)**	Explain in brief Zero Crossing Detector.	**03**
	(b)	What is need of Schmitt trigger circuit? Enlist & explain comparator characteristics.	**04**
	(c)	Compare DTL, TTL & RTL in tabular forms.	**07**
Q.4	**(a)**	Explain in brief block diagram of linear regulated power supplies.	**03**
	(b)	Write a technical note on: Negative Impedance converter.	**04**
	(c)	Explain bistable multivibrator using 555. Give necessary equations and draw neat figures and waveforms.	**07**
		OR	
Q.4	**(a)**	Explain 78xx and 79xx voltage regulators.	**03**
	(b)	Compare AC and DC equivalent circuit.	**04**
	(c)	Explain with neat sketches F/V converter.	**07**
Q.5	**(a)**	A single stage transistor amplifier has a voltage gain of 600 without feedback and 50 with feedback, calculate the percentage of output which is feedback to input.	**03**
	(b)	Explain Switched Capacitor Filter circuit in detail.	**04**
	(c)	Draw and Explain single stage CE amplifier circuit. What is role of CE, Cc, and Cin in single stage CE amplifier circuit?	**07**

OR

Q.5	**(a)**	What is Barkhausen criterion? The tuned collector oscillator makes use of an L-C tuned circuit with L= 29.3µH and C=450pF. determine frequency of oscillation.	**03**
	(b)	List out the advantages of negative feedback.	**04**
	(c)	Explain Summing, Scaling and Averaging Amplifier circuit with necessary equation and neat sketches.	**07**

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