Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI EXAMINATION – WINTER 2015

Subject Code:160801 **Date:15/12/ 2015**

Subject Name: Integrated Circuit & Application

Time:2:30pm to 5:00pm **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 is op-amp? Draw and explain the block diagram representation of a typical Op-amp.	**07**
	(B)	Explain absolute value output circuit.	**07**
Q-2	**(A)**	Define thermal drift and error voltage. Derive equation of error voltage.	**07**
	(B)	Explain the peaking amplifier.	**07**
		OR	
	(B)	Explain Differential input Differential output amplifier.	**07**
Q-3	**(A)**	What is an instrumentation amplifier? Explain it with suitable example.	**07**
	(B)	1) Explain the ideal voltage transfer curve. 2) Explain the equivalent circuit of practical op-amp.	**04** **03**
		OR	
Q-3	**(A)**	Explain the difference between bandwidth, transient response and slew rate.	**07**
	(B)	Explain the practical integrator circuit. Explain its advantages. Also draw its Frequency response.	**07**
Q-4	**(A)**	What is slew rate? Derive the expression of it's for op-amp.	**07**
	(B)	Define astable, monostable, and bistable multivibrator.	**07**
		OR	
Q-04	**(A)**	Explain Phase Locked Loop & It's application.	**07**
	(B)	In an inverting adder circuit the input voltages are 0.5v, 0.3v, 0.1v while R1=R2 =R3=1 kΩ. if Rf=10kΩ, calculate the output voltage.	**07**
Q-05	**(A)**	Why op-amp is generally not used in open-loop mode? Explain closed loop Configuration of op-amp. And give advantage of negative feedback.	**07**
	(B)	Explain voltage to current converter with floating load with one application.	**07**
		OR	
Q-05	**(A)**	An Op-Amp having the following parameters is connected as a non inverting amplifier with R1=1 kΩ and RF=10 kΩ: And A=200,000, Ri= 2 MΩ, Ro=75Ω, fo= 5Hz, supply voltage= ±15 V, output voltage swing = ±13 v Compute the values of AF, RIF, ROF, FF, and VOOT.	**07**
	(B)	Write a Short note on very high input impedance circuit.	**07**