Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(New) EXAMINATION – SUMMER 2016

Subject Code:2140305 **Date:01/06/2016**

Subject Name:Analog Circuits-II

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.**

			MARKS
Q.1		**Short Questions**	**14**
	1	What is the need of Isolation amplifier?	
	2	What is the difference between Instrumentation amplifier and differential amplifier?	
	3	Define Quality factor Q for filter.	
	4	What is the meaning of noise corner frequency?	
	5	What is the need of all pass filter design?	
	6	Define Noise floor.	
	7	What is the need of modulation?	
	8	Explain functionality of Frequency analyzer.	
	9	What is Mutual capacitance?	
	10	Enlist function available in Function generator.	
	11	Draw equivalent circuit of Magnetic coupling between two circuits.	
	12	How twisted pair cables minimize the inductive interface between them?	
	13	Define Burst Noise.	
	14	Enlist the component of CRO tube.	
Q.2	**(a)**	What is thermal noise? How it will affect the working of analog circuit?	**03**
	(b)	Explain design of pulsed excitation amplifier.	**04**
	(c)	Give the design of Instrumentation amplifier and derive its gain equation.	**07**
		OR	
	(c)	Explain Op-amp noise circuit model.	**07**
Q.3	**(a)**	Explain engineering aspects of magnetic recorder.	**03**
	(b)	Explain the concept of noise colors with their frequency content.	**04**
	(c)	Explain the fundamental of Low pass filter. What is the effect of order on filter response?	**07**
		OR	
Q.3	**(a)**	Explain design of transformer coupled isolation amplifiers.	**03**
	(b)	Discuss technical aspects of AM Transmitter and receiver.	**04**
	(c)	Discuss the design aspects of First order noninverting configuration of Low pass filter.	**07**

Q.4	**(a)**	Explain design of Chopper stabilized amplifier.	**03**
	(b)	Compare CRO and DSO.	**04**
	(c)	Explain design aspects of General Sallen-Key High-Pass Filter.	**07**

OR

Q.4	**(a)**	Design a second order Low pass filter at a high cutoff frequency of 1 KHz.	**03**
	(b)	Discuss the FM demodulation techniques.	**04**
	(c)	Explain design aspects of Sallen-Key Band-Pass filter.	**07**
Q.5	**(a)**	Explain schematic of Single point and multipoint ground techniques.	**03**
	(b)	Discuss available Safety Standards In Medical Electronic Amplifiers.	**04**
	(c)	Explain techniques for power supply noise reduction.	**07**

OR

Q.5	**(a)**	Explain the various methods of noise coupling.	**03**
	(b)	Explain Electrostatic discharge (ESD) protection techniques with necessary schematic.	**04**
	(c)	How shielding can affect the capacitive coupling?	**07**

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