Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(New) • EXAMINATION – WINTER 2016

Subject Code:2140305 **Date:21/11/2016**

Subject Name:Analog Circuits-II

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		**Short Questions**	**14**
	1	An operation amplifier can amplify_____. (a) AC signal (b) DC signal (c) AC &DC signals (d) None of above	
	2	What is the role of ISOLATION amplifier in Medical instrumentation?	
	3	What is the used of chopper amplifier?	
	4	What is the meaning of Electromagnetic compatibility?	
	5	Define Signal to Noise ratio.	
	6	Define Quality factor Q for band pass filter.	
	7	What is the need of modulation?	
	8	What is the function of frequency analyzer?	
	9	How power supply can be source of noise?	
	10	What do you mean of career signal? Where it is used?	
	11	What is flicker noise?	
	12	Why input impedance of circuit should be practically large value?	
	13	Draw the cross sectional view of Coaxial cable.	
	14	What is the application of All pass filter?	
Q.2	**(a)**	Draw and explain reverse battery protection circuit.	**03**
	(b)	Write introductory note on common problems associated with power supplies.	**04**
	(c)	What are the advantages of Instrumentation amplifier over differential amplifier? Derive gain equation for instrumentation amplifier.	**07**
		OR	
	(c)	Draw and explain working of Optical isolator circuit.	**07**
Q.3	**(a)**	Explain thermal noise model of resistor.	**03**
	(b)	Explain circuit grounding techniques.	**04**
	(c)	Explain EM coupling and its effect on circuit's normal function.	**07**
		OR	
Q.3	**(a)**	Explain Heat sink function and design aspects.	**03**
	(b)	How shielding protects circuit from noise interface?	**04**
	(c)	Explain electrostatic discharge (ESD) protection techniques.	**07**
Q.4	**(a)**	Explain basic concept of AM modulation.	**03**
	(b)	Draw and explain Op-amp noise model.	**04**
	(c)	Write a detail note on safety standards in medical electronic amplifiers.	**07**

OR

Q.4	**(a)**	Explain AM receiver circuit.	**03**
	(b)	Explain fundamental concepts of butter worth low pass filter.	**04**
	(c)	Explain designing aspects of second order Low pass filter. What is the effect of order on filter response?	**07**
Q.5	**(a)**	Explain concepts of FM demodulation techniques.	**03**
	(b)	What is the need of Pulse modulation? Enlist different types of pulse modulation.	**04**
	(c)	Draw internal Schematic of CRO and explain basic concepts of CRO working.	**07**

OR

Q.5	**(a)**	Draw the circuit of transformer coupled isolation amplifiers.	**03**
	(b)	Give technical note on Magnetic recorder.	**04**
	(c)	Explain common Grounding rules for good design.	**07**

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