Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (New) EXAMINATION – WINTER 2015

Subject Code:2142405 **Date:22/12/2015**

Subject Name: AE&A

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)**	Discuss diode as rectifier in bridge configuration along with C filter. Draw necessary waveforms and figures.	**07**
	(b)	Brief switched capacitor circuit and explain MF5 switched capacitor filter.	**07**
Q.2	**(a)**	What is a filter? Explain first order bandpass filter with necessary equations and waveforms.	**07**
	(b)	Explain triangular wave generator using Op-Amp. Give application of the same.	**07**
		OR	
	(b)	What are logic gates? Discuss their working principle. Explain TTL logic family.	**07**
Q.3	**(a)**	Explain bistable multivibrator using 555. Give necessary equations and draw neat figures and waveforms.	**07**
	(b)	Explain the block diagram and working of V/F converter.	**07**
		OR	
Q.3	**(a)**	Explain clipper and clamper circuit with necessary figure & waveforms. Give applications of the same.	**07**
	(b)	Explain summing amplifier and scaling amplifier.	**07**
Q.4	**(a)**	What is Op-Amp? Draw its symbol and block diagram. Discuss the characteristics of an ideal Op-Amp.	**07**
	(b)	Explain the design of a series regulated power supply.	**07**
		OR	
Q.4	**(a)**	Draw Op-Amp in differential configuration and explain its working. What happens if the input of the Op-Amp is increased above its supply?	**07**
Q.4	**(b)**	Draw the block diagram of a linear regulated power supply and explain its working.	**07**
Q.5	**(a)**	Explain Class B amplifier along with necessary figures, waveforms and applications.	**07**
	(b)	Explain Op-Amp as summing amplifier. Give its applications.	**07**
		OR	
Q.5	**(a)**	Explain Class C amplifier with necessary figures, waveforms and applications.	**07**
	(b)	Explain 78xx and 79xx voltage regulators. Draw necessary figures and draw circuit diagram to get 12 volt constant output using 7812 IC.	**07**

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