Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2015

Subject Code: 2142405 **Date:28/05/2015**

Subject Name: Analog Electronics and Its Application

Time: 10:30am-1.00pm **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)**	Draw and Explain full wave bridge rectifier circuit with capacitor filter draw necessary waveforms.	**07**
	(b)	100µF capacitor when used as a filter has 12V dc across it with a terminal load resistor of 2.5KΩ.If the rectifier is full wave and supply frequency is 50Hz what is the percentage of ripple in the output.	**07**
Q.2	**(a)**	Draw the block diagram of a regulated DC power supply and explain the function of each block.	**07**
	(b)	Draw the circuit diagram of class B push pull amplifier with the help of suitable waveforms and explain its operation.	**07**
		OR	
	(b)	Draw the CE transistor configuration and give its input and output characteristics.	**07**
Q.3	**(a)**	Explain block diagram of op-amp. Explain function of each block.	**07**
	(b)	Explain the construction of ANDgate,OR gate, Not gate logic gates using discrete components like diode, resistor, Transistor etc.	**07**
		OR	
Q.3	**(a)**	Explain inverting and non-inverting and differential amplifier using op-amp under open loop condition	**07**
	(b)	Why NAND gate and NOR gate is known as a Universal Gate? Obtain AND gate, OR gate and Exclusive-OR gate using NAND gate and NOR gate.	**07**
Q.4	**(a)**	Explain the following terms related to the Op-amp:1)Input offset voltage 2) Input bias & offset current3) Total output offset voltage 4)PSRR 5)CMRR	**07**
	(b)	Explain Zero Crossing Detector circuit	**07**
		OR	
Q.4	**(a)**	Explain the Op-amp based Precision Rectifier circuit	**07**
	(b)	Explain Op-amp based Clipper & Clamper circuit	**07**
Q.5	**(a)**	Explain Switched Capacitor Filter circuit in detail	**07**
	(b)	Explain Suming,Scaling and Averaging Amplifier circuit	**07**
		OR	
Q.5	**(a)**	Define the Active and Passive Filter and Explain the op-amp based High Pass Filter circuit.	**07**
	(b)	Define Oscillators enlist types of oscillators and Explain op-amp based phase Shift Oscillator in detail	**07**

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