

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– IV (New) EXAMINATION – WINTER 2019

Subject Code: 2142405

Date: 10/12/2019

Subject Name: Analog Electronics and Its Applications

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	(a) Compare Diode with Bipolar Junction Transistor.	03
	(b) Draw Class – A amplifier circuit and specify its applications and limitations.	04
	(c) Explain 78xx and 79xx voltage regulators. Draw necessary circuit diagram to get 12-volt constant output using 7812 IC.	07
Q.2	(a) Draw Class-C amplifier circuit and specify its applications.	03
	(b) Give comparative statements in Tabular form for CE, CB, CC Configuration of BJT.	04
	(c) Draw and explain Full Wave Rectifier circuit diagram and various waveforms having capacitor filter for R – Load.	07
	OR	
	(c) Draw and explain Full Wave Rectifier circuit diagram and various waveforms without capacitor filter for RL-Load.	07
Q.3	(a) Discuss Ideal Op-amp.	03
	(b) Discuss practical Op-amp Characteristics.	04
	(c) Draw the basic block diagram, symbol, characteristics and equivalent circuit of Operational Amplifier. List the type and important parameters of Op-amp.	07
	OR	
Q.3	(a) What are the significances of DC load line characteristics?	03
	(b) Explain square wave generator with neat & clean diagram.	04
	(c) Define: (1) CMRR (2) Input offset voltage (3) Slew rate (4) Input bias current (5) PSRR (6) Thermal drift (7) Bandwidth	07
Q.4	(a) Draw Peak Sample and Hold Circuit using Op-amp.	03
	(b) Draw and explain Precision Rectifier Detector using Op-amp.	04
	(c) Explain clipper and clamper circuits using Op-amp with necessary diagram & waveforms. Give applications of it.	07
	OR	
Q.4	(a) Explain the frequency response of high pass filter.	03
	(b) Draw block diagram of V/F converter and explain its working.	04
	(c) Explain bistable multivibrator using 555. Give necessary equations and draw neat diagram and various waveforms.	07
Q.5	(a) Discuss Phase Shift Oscillator.	03
	(b) Discuss Wien Bridge Oscillator.	04

- (c) Draw and explain the circuit diagram and various waveforms for Triangular Wave Generator. **07**

OR

- Q.5** (a) Enlist the possible name of logic gates. Enumerate the advantages of logic gates. **03**
- (b) Construct and explain a logic gate using Discrete Components. **04**
- (c) Give possible comparative statements for DTL, TTL & RTL in tabular forms. **07**

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