

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2130902

Date: 02/06/2017

Subject Name: Analog Electronics

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 Define the basic principle of Feedback Control System	01
2 Define : Slew rate	01
3 Draw the subtractor circuit using Op-Amp	01
4 Define Q for filter circuits.	01
5 Justify that ideally common mode rejection ratio for op-amp is infinite	01
6 Describe in brief : PSSR	01
7 Draw the Pin diagram of IC-555	01
8 Draw the circuit of Op-amp based integrator.	01
9 Define : (1) Load Regulation and Line Regulation	01
10 Draw the pin configuration of 78XX and 79XX fixed voltage regulator	01
11 Describe the meaning of Cross Over Distortion occurred in amplifier.	01
12 Define : Input Offset voltage	01
13 Justify that FET is voltage controlled device	01
14 Define the meaning of virtual ground in Op-amp.	01
Q.2 (a) Draw the block schematic of a typical operational amplifier and briefly explain the function of each block.	03
(b) Explain the working of class B push pull amplifier with circuit diagram.	04
(c) Explain How Op-amp works as an average amplifier	07
OR	
(c) What will be effect of voltage series feedback amplifier on input resistance, gain and stability?	07
Q.3 (a) List the important characteristics of the comparator	03
(b) What are the merits and demerits of hybrid parameters?	04
(c) Explain adjustable voltage regulator using neat diagram.	07
OR	
Q.3 (a) Explain the effect of negative feedback on frequency response of an Op-amp.	03
(b) Draw and explain OP-AMP works as a zero crossing detector	04
(c) Explain the working of a practical differentiator circuit with neat sketch.	07
Q.4 (a) Draw the diagram of instrumentation amplifier using op-amp.	03
(b) Draw the IC-555 based monostable multivibrator circuit.	04
(c) Explain circuit diagram of OP- AMP as a Peak detector.	07
OR	
Q.4 (a) Compare active and passive filter.	03
(b) Describe how an Op-amp may be used as current to voltage converter.	04

- (c) Explain with the help of circuit diagram, the operation of second order Butterworth high pass filter. **07**
- Q.5** (a) Draw the circuit of Op-amp as Schmitt trigger **03**
(b) List out the advantages of negative feedback over positive feedback **04**
(c) Draw and explain working operation of LM317 IC. **07**
- OR**
- Q.5** (a) Draw the hybrid mode for CE and CB configuration. **03**
(b) Draw & explain working of Opamp based Wein-Bridge oscillator. **04**
(c) Draw and explain the block diagram of PLL system. **07**
