

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code: 130902

Date: 31/05/2017

Subject Name: Analog and Digital 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.

- Q.1** (a) Explain the block diagram of op-amp with function of each block. **07**
(b) What are ideal characteristics of operational amplifier? **07**
- Q.2** (a) Describe inverting and noninverting amplifier using op-amp with relevant circuit diagrams, waveforms and equations. **07**
(b) Explain the working of op-amp as integrator and differentiator. **07**
- OR**
- (b) Describe working of a differential amplifier using three op-amps. **07**
- Q.3** (a) Explain the basic principle of comparator. Describe the working of Schmitt trigger circuit. **07**
(b) Discuss summing, scaling and averaging amplifier. **07**
- OR**
- Q.3** (a) Discuss IC555 with function of each pin. **07**
(b) Write a brief note on instrumentation amplifier using op-amp. **07**
- Q.4** (a) Describe the working of a 3 to 8 line decoder. **07**
(b) Explain a 4 input multiplexer. **07**
- OR**
- Q.4** (a) Explain JK master slave flipflop. **07**
(b) Define the following terms w.r.t. flip flops: set up time, propagation delay time, hold time, preset, clear, race around, truth table. **07**
- Q.5** (a) Discuss 78XX and 79XX three terminal voltage regulators. **07**
(b) State and explain De Morgan's theorems. **07**
- OR**
- Q.5** (a) Reduce using K-map (i) $\Sigma m(5,6,7,9,10,11,13,14,15)$ **07**
(ii) $\Pi M(1,5,6,7,11,12,13,15)$.
(b) Discuss working of IC555 with function of each pin. **07**
