

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-III (OLD) - EXAMINATION – SUMMER 2018**

**Subject Code: 130902**

**Date: 21/05/2018**

**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 block diagram of op-amp. What are the ideal characteristics of op-amp? **07**  
(b) Discuss Slew Rate with reference to 741C op-amp. **07**
- Q.2** (a) Explain principle of Basic Comparator. Describe operation of Schmitt Trigger with necessary diagram. **07**  
(b) Explain integrator with its frequency response. **07**
- OR**
- (b) Describe inverting and non-inverting amplifier using op-amp with relevant circuit diagrams, waveforms and equations. **07**
- Q.3** (a) Explain RTL and I<sup>2</sup>R logic families. **07**  
(b) How can be obtained 1's and 2's compliment of binary number? **07**
- OR**
- Q.3** (a) Explain AND and OR gate using diode and transistor circuit. **07**  
(b) Realize EX-OR and NOR gate using NAND gate. **07**
- Q.4** (a) Discuss IC555 with function of each pin. **07**  
(b) Enlist the applications of 555 timer in astable and monostable mode. **07**
- OR**
- Q.4** (a) Explain a 4 input multiplexer. **07**  
(b) Explain Full adder and Half adder circuit. **07**
- Q.5** (a) Explain JK master slave flipflop. **07**  
(b) Explain edge triggered D Flip flop with its truth table. Also state its applications. **07**
- OR**
- Q.5** (a) Explain working of counter and register. **07**  
(b) Explain three variables and four variables K-map. **07**

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