

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2130902

Date:23/05/2018

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 | (a) Draw block-diagram representation of a typical op-amp. | 03 |
| | (b) Define: (1) PSRR (2) Input bias current (3) Input offset voltage (4) SVRR. | 04 |
| | (c) Draw the IC-555 based astable multivibrator circuit and derive equation for frequency of output waveform. | 07 |
| Q.2 | (a) Draw transistor C-E amplifier circuit. Draw its ac equivalent circuit. | 03 |
| | (b) Draw and explain stages of instrumentation amplifier. | 04 |
| | (c) Explain how Op-amp works as an average amplifier. | 07 |
| OR | | |
| | (c) What is transistor load line? Explain how to obtain it. Define Q- point on the load line. | 07 |
| Q.3 | (a) Draw and explain OP-AMP as a zero crossing detector. | 03 |
| | (b) Give comparison of: astable, monostable and bistable multivibrator. | 04 |
| | (c) What do you mean by slew rate in an OP-AMP? Also mention about causes of slew rate and explain its significance in applications. | 07 |
| OR | | |
| Q.3 | (a) Compare various transistor amplifier configurations. | 03 |
| | (b) What is power amplifier? Give important features of power amplifier circuit. | 04 |
| | (c) What will be effect of voltage series feedback amplifier on input resistance, gain and stability? | 07 |
| Q.4 | (a) What are the merits & demerits of hybrid parameters? | 03 |
| | (b) Compare different types of power transistors. | 04 |
| | (c) Classify the types of negative feedback & explain each in brief. | 07 |
| OR | | |
| Q.4 | (a) What are the applications of OP- AMP based schmitt trigger circuit. | 03 |
| | (b) Explain application of OP-AMP based Wein bridge oscillator. | 04 |
| | (c) With the help of neat diagram explain the circuit of voltage to current converter. Also state its applications. | 07 |
| Q.5 | (a) Compare between active and passive filters. | 03 |
| | (b) Explain with the help of circuit diagram, the operation of second order Butterworth high pass filter. | 04 |
| | (c) Discuss the operation of LM317 voltage regulator. | 07 |

OR

- Q.5** (a) List out the different performance parameter of a power supply. **03**
- (b) Draw basic block schematic of 78×× series three terminal voltage regulator ICs. **04**
- (c) What is PLL? Discuss different applications of PLL in detail. **07**
