

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-V • EXAMINATION – WINTER • 2014

Subject Code:151006**Date: 08-12-2014****Subject Name: Applied Electronic****Time: 10.30 am - 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) State the ideal characteristics of an operational amplifier and the important mathematical operations an Op-amp perform. **07**
- (b) Define following terms: **07**
(i) Ideal voltage source (ii) Ideal current source (iii) Dependent voltage source
(iv) Dependent current source (v) Load side regulation (vi) Line side regulation
(vii) Regulated power supply.
- Q.2** (a) Explain any one closed loop Op-Amp configuration in detail. **07**
- (b) How to use 555 timer circuit as monostable multivibrator? **07**
- OR**
- (b) Explain construction and principle of operation of photoconductive cell. **07**
- Q.3** (a) What is LVDT? Explain principle and operation of LVDT. Also list the advantage and application of LVDT. **07**
- (b) Explain the working of DIAC and its characteristic. **07**
- OR**
- Q.3** (a) Draw and explain characteristic, construction and working of SCR. **07**
- (b) Explain universal gate and compare sequential logic and combination logic. **07**
- Q.4** (a) Explain fuzzy logic system to improve the performance of washing machine in detail. **07**
- (b) Explain the principle of digital storage oscilloscope with block diagram. **07**
- OR**
- Q.4** (a) Design half and full adder and explain its operation. **07**
- (b) Explain digital multimeter. **07**
- Q.5** (a) Explain Optocoupler. **07**
- (b) A differential amplifier has inputs $V_{s1} = 10 \text{ mV}$ and $V_{s2} = 9 \text{ mV}$. It has differential mode of 60 db and a CMRR of 80 db. Find the % error in the output voltage and the error voltage. **07**
- OR**
- Q.5** (a) Explain architecture of 8051 with block diagram. **07**
- (b) Explain Switched Mode Power Supply (SMPS). **07**
