

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V • EXAMINATION – SUMMER 2013****Subject Code: 151006****Date: 23-05-2013****Subject Name: Applied Electronics****Time: 10:30 pm 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) What is Ideal Voltage source? Also explain factors affecting the voltage regulation with block diagram of Shunt voltage regulator. **07**

(b) What is Switch Mode Power Supply? Also Draw and Explain the working of SMPS with required block diagram circuits and wave forms. **07**

Q.2 (a) What is Operational amplifier? Draw and explain the block diagram of an Opamp. Also explain the ideal characteristics of an Opamp. **07**

(b) List all types of closed loop connections of an Opamp and explain any two of them in detail. **07**

OR

(b) What is 555 timer circuits? List all application of 555 timer circuits and explain any one of them in detail. **07**

Q.3 (a) What is transducer? Give characteristics of transducer and explain it. Also List the factors affecting the selection of transducer and explain it. **07**

(b) Reduce the following **07**

$$(1) ((A+(BC)')'(AB'+ABC))$$

$$(2) AB'C+B+BD'+ABD'+A'C$$

OR

Q.3 (a) What is LVDT? Draw and Explain the operations of LVDT? Also state the advantages and disadvantages of LVDT. **07**

(b) Minimize the following output function using K-map **07**

$$(1) f_1(A,B,C,D)=\sum m(1,2,3,5,7,8,9)+d(12,14)$$

$$(2) f_2(A,B,C,D)=\sum m(0,1,2,3,4,6,8,9)+d(10,11)$$

Q.4 (a) What is Liquid Crystal Display? Draw and Explain the functionality of LCD with required figure. **07**

(b) What is TRIAC? Draw and explain the construction of TRIAC? Also explain its operation with required figure. **07**

OR

Q.4 (a) What is Light Activated SCR? Draw and explain the construction and characteristics of LASCR in detail. **07**

(b) Draw and Explain the block diagram of Cathode Ray Oscilloscope. Also state their advantages. **07**

Q.5 (a) What is Digital Multi Meter? Draw and Explain the block diagram of DMM. Also state the advantages of DMM. **07**

(b) What is Piezoelectric transducer? Draw and explain the operations of piezoelectric transducer. Also state their advantages, disadvantages and applications of it. **07**

OR

Q.5 (a) What is Washing Machine? Properly explain the concept of fuzzy logic used in washing machine. **07**

- (b)** What is Bar Code Scanner? Draw and explain the operation of Bar Code Scanner with required figure. **07**
