Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- Vth SEMESTER–EXAMINATION – MAY/JUNE - 2012

Subject code: 151006 **Date: 07/06/2012**

Subject Name: Applied Electronics

Time: 02:30 pm – 05:00 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)** 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.

(b) Discuss any one closed – Loop op-amp configurations in detail. **07**

Q.2 **(a)** How to use 555 as monostable multivibrator? **07**

(b) Explain working of Linear variable differential transformer in detail. **07**

OR

(b) Explain the working of photoconductive sensors and photovoltaic sensors in detail. **07**

Q.3 **(a)** Discuss following: **07**
(i) Electrical strain gauge (ii) Thermocouple (iii) thermistor

(b) For the inverting amplifier with feedback, R1 = 500 Ω and R_F = 4.7 KΩ. Assume that A = 200000, R_i = 2 MΩ, Ro = 75 Ω, fo = 5Hz, Supply voltages = ± 15V, Output voltage swing = ± 13V. Calculate the values of A_F, Ri_F, Ro_F , f_F, and Voo_T. **07**

OR

Q.3 **(a)** Explain following operational amplifier parameters. **07**
(i) Input offset voltage (ii) Input offset voltage (iii) Input bias current (iv) Input capacitance (v) Slew rate (vi) SVRR (vii) CMRR

(b) Design a square wave generator at 1KHz using 555 timer IC. **07**

Q.4 **(a)** Explain construction and working of SCR using two transistor model. **07**

(b) Write short note on CRO. **07**

OR

Q.4 **(a)** Explain construction and working of UJT. Also explain UJT as relaxation oscillator. **07**

(b) Write short note on Digital Multimeter. **07**

Q.5 **(a)** Write short note on Washing Machine. **07**

(b) Simplify the following function using karnaugh map method. Also implement it using any two non-degenerate form. **07**
F(w,x,y,z) = Σ (1,4,6,7,8,9,10,11,15)

OR

Q.5 **(a)** Write short note on Photocopier machine. **07**

(b) Explain following Flip-Flop with necessary diagrams. **07**
(i) Clocked R-S flip-flop (ii) JK flip-flop

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