SE Sem. III | I.T. Analog & digital circuits. 01/06/15

(CBSGS)

Q.P. Code : 4929

(3 Hours) **[Total Marks : 80**

N.B. (1) Q.No.1 is compulsory
(2) Attempt any three out of remaining questions.
(3) Assume suitable data wherever required but justify them.
(4) Draw appropriate waveforms wherever required.

Q.1. (a) Convert D Flip-Flop to T Flip-Flop. (04)

(b) Draw the Truth Table and excitation Table for S-R Flip-Flop. (04)

(c) Explain the working of LCD. (04)

(d) Convert the following octal numbers to binary, decimal and hexadecimal number.

(i) $(6673)_8$ (ii) $(7466)_8$ (04)

(e) Compare BJT with JFET. (04)

Q.2. (a) Draw the Truth Table for Full adder and realize using 3:8 Decoder (10)

(b)Explain the working of Astable Multivibrator using IC- 555. (10)

Q.3. (a) Explain in brief different biasing circuits for BJT (10)

(b) Design a Modulo 5 ripple up counter and draw the waveforms for the same. (10)

Q.4. (a) Realize the following expression using only one 8:1 MUX and few Logic gates.

$F(A,B,C,D) = \sum m(0, 3, 6, 8, 11, 13, 15)$ (10)

(b) Explain Differential amplifier and elaborate any one method to improve CMRR. (10)

Q.5. (a) Design a synchronous counter which goes through following states using J-K Flip-Flop.

0-2-4-6-0 (10)

(b)Write a note on Shift Register. (10)

Q.6.Write short notes on the following. (20)

(a) Universal Gates

(b) 4-bit Binary to gray code converter

(c) Inverting and Non-inverting operational amplifier.

JP-Con. 11392-15.