SE-sem-IV-old-Electrical

ADIC

17/12/15

Q.P. Code : **1488**

(3 Hours) [Total Marks : 100

N.B. : (1) Question **No.1** is compulsory.
(2) Answer **any three** from remaining **six.**
(3) Assume data where ever needed.

1. (a) Convert JK flip flop to T flip flop. 5
   (b) Explain subtraction using 2's compliment. 5
   (c) Convert following 5
      (i) 1101101 to gray code
      (ii) $(95)_{10}$ to excess3
   (d) Implement OR gate using NAND gate only. 5

2. (a) Explain 555 timer working as Astable multivibrator 10
   (b) Prove (i) $(A+\overline{A}B)(A+AB)(A+C)=A$ 10
      (ii) $AB+\overline{A}C=AB+\overline{A}C+BC$

3. (a) Design a twisted ring counter using J-K flip flop. 10
   (b) Minimize the expression using K map and implement using basic gates only. 10
      $F = \Sigma (0,5,9,12,13,14,15)$

4. (a) Explain 10
      (i) TTL logic family
      (ii) Integrated injection logic.
   (b) Draw a logic diagram for 2 bit parallel in serial out register and explain the operation. 10

5. (a) Implement following expression using (i) 8:1 Mux(one) (ii) 4:1 Mux (two) 10
      $F(A,B,C) = \Sigma (0,2,5,6, 7)$
   (b) Minimize the following using Quine Mc clusky tabular method 10
      $F(A,B,C,D) = \Sigma m(1,2,3,5,7,8,9,11)$

6. (a) Implement BCD to Exess 3 Converter. 10
   (b) Design and implement 3 bit binary to gray code converter. 10

7. Write short notes on following : 20
   (a) Error detecting and correcting codes
   (b) Hazards in combinational logic circuits
   (c) IC 723
   (d) Master slave JK Flip-Flop

QP-Con. 11608-15.