C.U.SHAH UNIVERSITY

WADHWAN CITY

University (Winter) Examination -2013

Course Name:M.Sc(I.T)   Sem-I   Subject Name: -Basics Of Computer Architecture   **Marks :70**

Duration :-2:30 Hours   **Date :01/01/2014**

Instructions:-
(1) Attempt all Questions of both sections in same answer book / Supplementary.
(2) Use of Programmable calculator & any other electronic instrument is prohibited.
(3) Instructions written on main answer Book are strictly to be obeyed.
(4) Draw neat diagrams & figures (If necessary) at right places.
(5) Assume suitable & Perfect data if needed.

SECTION-I

Q-1 Do As Directed   **(7)**

    (1) In Boolean Algebra $A+A'=?$ and $A.A'=?$ (1)
    (1) Convert $(1024)d = (_____)b$ where d=decimal ,b=Binary   (2)
    (2) Find out the 2's Complement of $(1000111)b$ (2)
    (3) $(1110001)b + (1110011)b = ?$ (2)

Q-2 (a) What is a Gate ? Explain Various types of Gates in Digital Electronics.   (5)

   (b) Draw the Circuit diagram of Full Adder   (5)

   (c) What is Computer ? Explain Block Diagram of Digital Computer   (4)

OR

Q-2(a) What is Full Subtractor ? Explain in Brief.   (5)

   (b) Prove $(ABC)'=A'+B'+C'$ and $(A+B+C)'=A'B'C'$ (Demorgan's law) using Perfect

      Induction Method.   (5)

   (c) Find out 9's Complement and 10's Complement of (108)decimal   (4)

Q-3 (a) Draw the Circuit diagram of following logical Expression   (7)

        (I) $XYZ' + X'Y'Z + XY + X'Z$
        (II) $XY + X'Z + X(Y'+Z') + XZ$

   (b) What is Decoder? Explain in brief   (7)

OR

Q-3(a) Reduce the following logical   expression using Boolean algebra   (7)

   (I) X'YZ(X'+X+Y)+X'Z'Y(XX'+Y+Z) + X'Z'(X'+XY+XY)
   (II) X'(X'+Y+Y')+XZ(XY'+Y'+X')+X'Z

Q-3(b) What is Multiplexer ? Explain in brief.   (7)

SECTION-II

Q-4 Do As Directed   **(7)**

   (1)Draw the Circuit Diagram of Sum in Half Adder   (2)

   (2)Define Term : Memory   (1)

   (3)Define Term: Sequential Circuit   (1)

   (4)Convert (1056)d To Gray Code and XS-3 Gray Code   (3)

Q-5   (a) What is Counter? Explain Binary Counter in brief.   (5)

   (b) What is Stack ? Explain Stack Organization in brief.   (5)

   (c) Draw the Circuit Diagram of following   logical Expression   (4)

   XYZ+X'(YZ+ZX)+XY'+XZ+XY+Z

OR

Q-5   (a) What is addressing Modes ? Explain in brief   (5)

   (b) What is instruction? Explain Zero and one address instruction   (5)

   (c) What is Control Unit ? Explain in brief.   (4)

Q-6 (a) What is Flip-Flop ? Explain S-R Flipflop with Truth- Table and Circuit Diagram (7)

   (b)   (i) Differentiate RAM Versus ROM   (7)

   (ii) What is Cache Memory ? Explain in brief.

OR

Q-6 (a) What is Register? Explain Types of Register .   (7)

   (b) What is DMA ? Explain in brief.   (7)

*********01*14** *********