Digital Electronics Fundamentals (BS-102)
BSC(IT)

Note: Section –A is compulsory. Attempt any four from section B.

M.Marks: 60   **Time: 3 Hours**

Section-A   (2x10=20)

1) Explain the following:
    a) Realize an AND gate using NOR gates only.
    b) Differentiate between ROM and RAM
    c) What do you mean by an error?
    d) What is the function of T flip flop?
    e) Distinguish between positive and negative logic.
    f) How is racing condition avoided?
    g) Differentiate between synchronous and asynchronous counter
    h) Convert y= A'C+A'+BC into canonical SOP form
    i) Convert $(5489.2)_{10}$ into octal number.
    j) Give the truth table and logic diagram for half adder

Section-B   (10 marks each)

2) Design a 3x8 decoder.

3. Minimise the following Boolean expression using K-map :
    $F(a,b,c,d) = \sum m (2,3,6,8,9,10,12,15) + d(0,7)$
    Realize the circuit using NAND gates

4. Compare various error correction and detection methods.

5 Design a modulo-10 synchronous counter

6. Draw the truth table of full subtractor. Realise the full subtractor circuit using NAND gates only.

7. What do you mean by multiplexer? Realise the following expression using 4 : 1 multiplexer: $y= \sum m(1, 3, 4, 7, 8, 11, 13)$

——————— End ———————