Bachelor of Science (S.Y. B.Sc.) Third Semester
B.Sc.23132 - Electronics Paper-II (Digital Electronics-I)

_____

Notes :   1.   All questions are compulsory and carry equal marks.
          2.   Draw neat and well labelled diagram wherever necessary.

1.   Either

   a)   Explain SOP and POS form with suitable example.

       Minimize the four variable logic function using K-map.   **6+4**
       $f(A, B, C, D) = \Sigma m(1,3,7,11,15) + d(0,2,5)$

                     OR

   b)   Draw the logic diagram of 1:4 MUX using logic gate and explain its working with truth table.

       Obtain 8:1 MUX using 4:1 MUX and explain it with truth table.   **5+5**

2.   Either

   a)   Explain the concept of decoder. Draw the block diagram of BCD to seven segment decoder using IC 7447 and explain it with truth table.   **3+7**

                     OR

   b)   Explain half adder and full adder with logic diagram and truth table. What is 4 bit binary adder? Draw 4 bit binary adder diagram using IC 7483.   **7+3**

3.   Either

   a)   What is flip flop? Draw R-S flip flop using NAND gate and explain its working.

       Explain the working of DFF with suitable diagram. State any two applications of it.   **5+5**

                     OR

   b)   Draw the logic diagram of JKFF and explain its working with truth table.

       What is race around condition? How can it be removed?   **6+4**

4.   Either

   a)   Explain the construction and working of 4 bit ripple counter. Draw its timing diagrams.

       Differentiate between synchronous and asynchronous counter.   **6+4**

                     OR

   b)   What is modulus of a counter? Explain the construction and working of MOD 5 counter.

       Explain the working of 4 bit ring counter with timing diagram.   **6+4**

5.   a)   Draw logic diagram of 1:4 DEMUX using logic gate and explain it.

      b)   Explain the concept of encoder.

      c)   Explain the function of preset and clear inputs of FF.

      d)   Explain Johnson counter.   **2½x4**

*****