2018
MCA
MCA : 1.2
DIGITAL SYSTEM
Full Marks: 75
Time : 3 hours

The figures in the margin indicates full marks for the questions

1. Fill in the blanks: 5X1=5
   I. $457)_8$ = ...)$_2$
   II. The base of Decimal number is ....
   III. 1 byte = ... bits
   IV. A Filp-Flop has .... unit of memory
   V.   Race Around condition is the disadvantage of .... Filp-Flop

2. Find $(-14)_{10}$ = ...)$_2$, by following all the negative number representation techniques of Binary number system.   9

3. Differentiate between :   5X2=10
   a.Sequential Circuit & Combinational Circuit
   b. Synchronous Circuit & Asynchronous Circuit

4. Design a Half Adder and a Full Adder, and study their I/O characteristics.   4+6=10

5. Design a (8:1) Multiplexer   7

6. State and Prove the DeMorgan's Theorem.   2+2+3+3=10

7. What are the functional characteristics of Decoder? Design a (3:8) encoder.   5+5=10

8. Write short notes on : (Any Two)   2 ×7=14
   a. R-S Filp-Flop
   b. Race Around Condition
   c. Subtractor

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