SARDAR PATEL UNIVERSITY
B.C.A. (1st Semester) (CBCS) Examination 2016
Wednesday, 16th November
10:00 am to 12:00 Noon
US01EBCA01 || Digital Computer Electronics

Total Marks: 70

Q:1   Select an appropriate answer for the following.   **[10]**

1. The OR gate has two or more input signals. If any input is _____, the output is high.
   a). High   b). Low   c). Both A and B   d). None

2. An invert gate is also called a _____ gate.
   a) NOR   b) NOT   c) XNOR   d) NAND

3. The _____ gate has two or more input signals. All inputs must be same to get a high output.
   a). EX-OR   b). NAND   c). EX-NOR   d). NOR

4. In Comparator, _____ gate is use for comparing bits in word.
   a) XOR   b) AND   c) NOR   d) XNOR

5. In k-map, octets eliminates _____ variable.
   a) One   b) Two   c) Three   d) Four

6. Half adder is logic CKT that adds _____ digit at a time.
   a) 1   b) 2   c) 3   d) 4

7. A combinational circuit that performs the arithmetic addition of two bits is called _____
   a) Half Adder   b) Full Adder   c) Binary Adder   d) Decoder

8. In half adder XOR gate's output _____
   a) Carry   b) Sum   c) Reminder   d) None

9. A _____ register is the simplest kind of register; all it does store a digital word.
   a) shift left   b) shift right   c) buffer   d) simple

10. In D flip-flop, when CLK is high then input is _____.
    a) high   b) low   c) invert of input   d) same as input

Q:2 Answer the following questions. (Attempt any ten) [20]

1. Explain OR gate in detail
2. Explain Commutative Low.
3. Write truth table for : A'B+B'C
4. Explain De-Morgan's first theorem.
5. Simplify using K-Map: $F(A,B,C)=\sum(1,2,5)$
6. Draw the circuit diagram for 4 * 1 multiplexer.
7. Describe Quad in K-Map.
8. Explain D Flip-Flop.
9. Define Comparator in short.
10. What is shift register? Give its type.
11. Explain logical addition in Boolean algebra.
12. Explain Binary adder in short.

Q:3 What is Truth Table? Explain Associative, Commutative and Distributive laws [10]
with example.

OR

Q:3 What is Gate? Explain NAND, NOR, AND, EX-OR with diagram and truth [10]
table.

Q:4

A. What is Karnaugh – Map ? [05]
Simplify using k- map: $F(A,B,C,D)=\sum(1,3,5,6,8,11,13)$
B. Explain 8*3 line encoder in detail. [05]

OR

Q:4 A. Explain two variables and three variables k-maps with example. [05]
B. Explain Comparator with circuit and example. [05]

Q:5

A. Explain Binary Adder with circuit diagram and example. [05]
B. What is Multiplexer? Explain 8 * 1 with logic circuit and truth table [05]

OR

Q:5 A. Explain binary adder-subtractor in detail. [05]
B. Explain Binary Adder with circuit diagram and example. [05]

Q:6

A. Explain D Flip-Flop with proper circuit diagram. [05]
B. Explain Shift Left register with example. [05]

OR

Q:6 A. Explain Controlled Buffer register with example. [05]
B. Explain Ring counter with appropriate example [05]

~*~*~*~*~*~ Best Of Luck ~*~*~*~*~*~

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