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SARDAR PATEL UNIVERSITY

BCA Semester-3 Examination, 202

US03SBCA21 || DIGITAL COMPUTER ELECTRONICS

17th June, 2022 Friday

Time : 12.00 p.m. – 01.00 p.m. **Marks: 35**

Q-1 **Select the appropriate option for the following questions:** **05**

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

2) In k-map, pair eliminates _____ variable.
   A. One C. Two
   B. Three D. Four

3) A combinational circuit that performs the arithmetic addition of two bits is called_____.
   A. full adder C. binary adder
   B. half adder D. decoder

4) A _____register is the simplest kind of register; all it does store a digital word.
   A. shift left C. buffer
   B. shift right D. counter

5) The _____ gate has two or more input signals. All inputs must be high to get a high output.
   A. NAND C. AND
   B. OR D. NOR

Q-2 **Tick (TRUE or FALSE) and Fill in the blanks.** **04**

1) De Morgan's second theorem says that a NAND gate is equivalent to a bubbled NAND. **[TRUE/FALSE]**
2) A Decoder is a combinational circuit that converts binary information from the n coded inputs to a maximum of 2n unique outputs. **[TRUE/FALSE]**
3) A _____ is logic circuit that can add two binary numbers.
4) A register is a group of _____ that work together as a unit.

Q-3 **Give short answers of the following questions: (ANY FIVE)** **10**

1) Explain Associative low.
2) Describe the AND, NOR gate.
3) Draw the circuit diagram of comparator.
4) Define the function of Encoder and Decoder.
5) What is Multiplexer?
6) Differentiate between Half adder and Full adder.
7) What is register? Draw circuit diagram of shift right register.
8) Define Flip flop. What is Race condition?

Q-4 **Give Long answers of the following questions: (ANY FOUR)** **16**

1) Explain De Morgan's first theorem.
2) Explain truth table with appropriate example.
3) Explain 8x3 line encoder in detail.
4) What is k-map? Explain pair and quad with example.
5) Explain full adder in detail.
6) Explain 4x1 multiplexer in detail.
7) Explain shift left register.
8) Explain 4-bit binary Adder / Subtractor.

— X —

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