

Roll No.

Total No. of Pages: 02

Total No. of Questions: 07

BCA (Sem. – 3)
DIGITAL CIRCUITS & LOGIC DESIGN
Subject Code: BSBC-303
M Code: 10059
Date of Examination: 16-12-2022

Time: 3 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Answer the following:
 - a) What is a NOR gate?
 - b) What is half adder?
 - c) What is a parallel binary adder?
 - d) Explain JK flip flop.
 - e) Differentiate between D flip flop and T flip flop.
 - f) Explain up-down counter.
 - g) What is an asynchronous counter?
 - h) Convert decimal 45 to binary.
 - i) What is 2's complement of 1101100?
 - j) What is a binary subtractor?

SECTION-B

2. Explain the design of asynchronous counters.
3. How to implement Boolean equations using multiplexer and demultiplexer? Explain.
4. a) Explain MOD-N counters
b) Convert octal 127543 into binary and hexadecimal.
5. Differentiate between:
 - a) Half adder and full adder
 - b) RS and JK flip-flop
6. Explain different types of logic gates.
7. a) Explain the concept of a parallel binary adder.
b) Simplify the Boolean function:
$$F(A, B, C, D) = \sum(3, 7, 11, 13, 14, 15)$$
 in sum-of-products form.

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NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.