

C1005

Total Pages : 3

Roll No.

MIT (CS)-302

Introduction Digital Systems

M.Sc. Cyber Security (MSCCS-18/21)

3rd Semester Examination, 2022 (June)

Time : 2 Hours]

Max. Marks : 80

Note : This paper is of Eighty (80) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

SECTION–A

(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Twenty (20) marks each. Learners are required to answer any Two (02) questions only.

(2×20=40)

1. What is Boolean algebra? What are their different rules? Explain different types of Boolean operators. Explain each.

2. What is the difference between Combinational circuit and sequential Circuit? Explain by giving example.
3. What are Huntington's postulates? What are the several new propositions derived using the basic Huntington's postulates?
4. What is multiplexer? Explain the functioning of a multiplexer and a demultiplexer with help of suitable diagram.
5. What is a Karnaugh-map? Why it is used? Explain 3-variable K-map with the help of an example.

SECTION-B

(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Ten (10) marks each. Learners are required to answer any Four (04) questions only. (4×10=40)

1. Write the following decimal number in Excess-3, 2421, 84-2-2 BCD codes :
 - (a) 563.
 - (b) 678.
 - (c) 1465.
2. Explain the functioning of an Encoder and a Decoder.

3. Simplify a given Boolean expression using Karnaugh map.
 4. Explain the working an a half-adder and a full-adder.
 5. What are different Logic gates? Draw their graphic symbol and Algebraic function.
 6. What is a postulate? Explain DeMorgan's Law.
 7. What is a truth table? Why it is used? Explain canonical product terms.
 8. What is POS form of representation of Boolean functions?
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