

**P-857**

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Roll No. ....

## **MIT(CS)-302**

### **Introduction Digital System**

M.Sc. Cyber Security (MSCCS)

3rd Semester Examination, 2023 (June)

**Time : 2 Hours]**

**Max. Marks : 70**

**Note :** This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. Candidates should limit their answer to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

### **SECTION-A**

#### **(Long Answer Type Questions)**

**Note :** Section 'A' contains Five (05) long answer type questions of Nineteen (19) marks each. Learners are required to answer any Two (02) questions only.

(2×19=38)

1. What is number system? Explain any four types of number system each with example.

2. What is a Karnaugh-map and why it is used? Explain 3-variable K-map with suitable example.
3. What are the applications logic gates? Draw the block diagram of a 3-input AND gate and OR gate. Give its truth table.
4. Define Flip-Flop. Explain JK Master-Slave Flip-Flop and its working in details.
5. Define shift register? Write down the different types of shift registers and its functions in details.

## **SECTION-B**

### **(Short Answer Type Questions)**

**Note :** Section 'B' contains Eight (08) short answer type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only. (4×8=32)

1. Explain Two's Complement Representation with example.
2. What is BCD number system? Explain with an example.
3. Why we use coding of information? Explain with example.
4. Explain SOP form and POS form with example.

5. Explain the functioning of a multiplexer and a demultiplexer.
  6. What is a counter? Explain Asynchronous (ripple) and Synchronous counter.
  7. Define and describe DeMorgan's Theorem.
  8. Define secondary memory. Explain any five secondary storage devices/memory.
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