

FACULTY OF INFORMATICS**B.C.A. I- Semester (CBCS) (New) (Main & Backlog) Examination, March 2022****Subject: Digital Principles****Time: 3 Hours****Max. Marks: 70****Note: Answer all questions from Part-A & any Five questions from Part-B.****PART- A (10 x 2 = 20 Marks)**

1. a) Convert $(547)_{10}$ to octal Number?
- b) What is Grey Code?
- c) When to use don't care Conditions in K- Maps?
- d) Define combinational Circuit with Example?
- e) What is Flip-flop? Give an Example?
- f) What is the difference between combinational and sequential Circuits?
- g) What is Universal Shift Register?
- h) What are the applications of Ring Counter?
- i) What is golden rule of Digital Logic Design?
- j) Define State Table with Example?

PART- B (5 X 10 = 50 Marks)

2. Explain the Properties of Boolean algebra?
3. Explain the following
 - a) Number Bases conversion
 - b) Universal Gates in Digital Logic Design
4. a) Explain about K-Maps in detail?
b) Write a short note on Binary Adder?
5. Discuss the Following
 - a) Decoder
 - b) Multiplexer
6. Discuss the following
 - a) State Reduction
 - b) Positive Edge Triggering
7. Explain about different types of Flip-flops in details?
8. a) Explain about BCD Ripple Counter?
b) Discuss about Ring Counter?
9. Discuss the following
 - a) Shift Registers
 - b) Up-Down Binary Counter
10. Discuss about the Analysis process of Asynchronous Sequential Circuits in detail?
11. a) Explain about primitive flow tables with example?
b) Write a short note on SR Latch with NAND Gate?