UG 3rd Semester Examination 2021

Computer Science (General)

Paper- SEC-1

Digital System Design

[CBCS]

Full Marks: 32 **Time: 2Hours**

(The figure in the margin indicate full marks)

Group-A

1. Answer any *six* questions: 2 X 6 = 12

   a) $(3412)_8 = (?)_{10}$

   b) What is gray code?

   c) Implement NAND and OR gate using NOR gate.

   d) What is latch?

   e) Simplify the following expression: (A+B)(A+C) + A

   f) Why MUX is known as Data Selector?

   g) What is edge triggering?

Group-B

Answer any *two* questions 10 X 2 = 20

2. a) Differentiate between Minterm and Maxterm. Convert the following expression to its equivalent maxterm expression: A'+AB'C+ABC'. 2+3=5

   b) State and prove De Morgan's Theorem in Boolean algebra. 5

3. a) What is Decoder? Draw the circuit diagram of a 2 X 4 decoder. 2+3=5

   b) Solve the function using K-Map method: 5

   $f(A,B,C)=\sum(1,2,4,5,6)$

4. a) Describe SR flip-flop with its circuit diagram. 5

   b) What is race-around condition? How it is solved? 2+3=5