

Code No. 3125

FACULTY OF SCIENCE
B.Sc. IV-Semester (CBCS) Examination, May / June 2019**Subject : Computer Applications****Paper – IV : (SEC – 2 (D : Digital Logic)****Max. Marks: 40****Time : 11/2 Hours****PART – A (2 x 5 = 10 Marks)**
(Short Answer Type)**Note : Answer any FIVE of the following questions.**

1. a) Define Implicant, Prime Implicant and Essential Implicant. Give the Implicant, Prime implicant and Essential Implicant of 4 – variable Boolean function.

$$f(A,B,C,D) = \sum m(0, 2, 4, 5, 6, 7, 8, m 10, 13, 15)$$

OR

- b) Draw the NAND – NAND and NOR – NOR implementations of the following Boolean functions.

$$f(A,B,C) = \sum m(1, 3, 5, 6)$$

2. a) Explain the Hazards occurring in combinational Logic Circuits in detail.

OR

- b) Draw the 4:1 Multiplexer using logic gates and explain how it is simulated and tested.

PART – B (2 x 15 = 30 Marks)
(Essay Answer Type)**Note: Answer ALL the questions.**

3. (a) Discuss the rules of Karnaugh Map to simplify the 4 – variable Boolean function and draw the logic diagram using logic gates.

$$f(A,B,C,D) = \sum m(1, 3, 4, 5, 8, 9, 10, 11, 12, 13)$$

OR

- (b) Discuss the conversion of alternative Gate implementations for NAND – NAND and NOR – NOR implementation in detail with suitable example.

4. (a) Explain the concept constructing of Logic Circuits with limited Gate Fan – In, Gate Delays with trimming diagrams in detail with suitable example.

OR

- (b) Explain Three – State buffers with suitable circuit and Explain 4:1 Multiplexer with neat logic diagram.
