



InSem Examination-II Summer2024		
Exam Seat No.:		
Academic Year:2023-2024	Semester:IV	
Name of Programme: S.Y.B.Tech	Pattern:2022	
Name of Course: VLSI Design and Technology	Course Code: ETC222013	
Max. Marks:30	Duration:1Hr	

<p><b>Instructions:</b> Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.</p> <ol style="list-style-type: none"><li>1. This question paper contains 2 page(s).</li><li>2. Answer to each new question is to be started on a new page.</li><li>3. Assume suitable data wherever required, but justify it.</li><li>4. Draw the neat labelled diagrams, wherever necessary.</li><li>5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.</li></ol>	
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**Question No. 1 Attempt following Question**

- a) Compare PROM, PLA and PAL (7) CO1

**OR**

- b) Describe with neat diagram AND-OR structure of PLA and PAL (7) CO1

- c) Implement the following output functions using a suitable PLA. (8) CO1

$$F1(A,B,C,D) = m(3,7,8,9,11,15) \quad F2(A,B,C,D) = m(1,5,7,11,15)$$

**OR**

- d) Implement following function using PROM (8) CO1

$$F1(A, B, C) = m(0, 3, 4, 7) \quad F2(A, B, C) = m(1, 2, 5, 7)$$

**Question No. 2 Attempt following Question**

- a) Design and implement a one bit Full Adder in Structural modeling (7) CO2

**OR**

- b) Design and implement a 2:1 Multiplexer in Structural modeling (7) CO2

- c) Find the value of following expressions if the two unsigned variables  $A=4'b1101$  and  $B=4'b1001$  (8) CO2  
i)  $\{A \& \& B\}$  ii)  $(A \| B)$  iii)  $\{4\{A\}, 2\{B\}\}$  iv)  $B \gg 2$

**OR**

d) What is Verilog HDL? What are the major capabilities of Verilog HDL

(8) CO2

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