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Reg. No. :

Question Paper Code: U2205

B.E./B.Tech. DEGREE EXAMINATION, NOV 2022

Second Semester

Computer Science and Engineering

21UCS205- Digital Electronics

(Regulations 2021)

Duration: Three hours Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. If A=1 and B=0 then A`+B`=_____ CO1- U

   (a) 0 (b) 1 (c) 2 (d) 3

2. A combinational circuit is one where the output at any time depends only on the _____combination of inputs CO2- U

   (a) Present (b) Finite (c) In-finite (d) Continious

3. In the case of a J-K flip-flop with active _____inputs, the output of the flip-flop toggles CO3- U

   (a) High (b) Low (c) Half (d) Parcials

4. The SR latch consists of_____ CO4- U

   (a) 1 input (b)2 input (c)3 input (d) 4 input

5. Which type of device FPGA are? CO5- U

   (a) SLD (b) SROM (c) EPROM (d) PLD

PART – B (5 x 3= 15Marks)

6. What is Boolean algebra? CO1- U
7. Define multiplexer CO2- U
8. What is a master-slave flip-flop? CO3- U
9. What are the steps for the design of asynchronous sequential circuit? CO4- U
10. Define Static RAM and dynamic RAM. CO5- U

PART – C (5 x 16= 80Marks)

11.	(a)	Simplify F(A,B,C)=Σ(0,1,2,3,7) in sum of products and product of sum using K-map.	CO1-App	(16)
		Or		
	(b)	Express the following function in a simplified manner using K map technic F(X,Y,Z)= Σ(0,1,2,6,7).	CO1-App	(16)
12.	(a)	Design priority encoder with input Cin(X, Y) and draw the logic diagram?	CO2-App	(16)
		Or		
	(b)	Design a logic circuit that accepts a 4-bit binary code and converts it to 4-bit Gray code with input(B3,B2,B1,B0) and output(G3,G2,G1,G0)?	CO2-App	(16)
13.	(a)	Analyze the operation of JK flip-flops with suitable diagrams?	CO3-Ana	(16)
		Or		
	(b)	Construct a clocked SR flip-flop with neat diagram and also discuss its performances?	CO3-App	(16)
14.	(a)	Explain in detail about Hazards and its types with example?	CO4-App	(16)
		Or		
	(b)	Explain in detail about races and types of races with suitable example?	CO4-App	(16)
15.	(a)	Implementation of Combinational Logic Circuit using PROM? Using PROM realize the following expression F1 (A, B, C) = Σm (0, 1, 3, 5, 7) F2 (A, B, C) = Σm (1, 2, 5, 6)	CO5-App	(16)
		Or		
	(b)	Implement the following functions using PLA. F1 (A, B, C) = Σm (1, 2, 4, 6) F2 (A, B, C) = Σm (0, 1, 6, 7) F3 (A, B, C) = Σm (2, 6)	CO5-App	(16)