C **Reg. No. :** | | | | | | | | | | | | |

Question Paper Code: U2205

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

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. Hexadecimal Value for 15 is equal to_____ CO1- U

   (a) A (b) B (d) F (c) D

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. For programmable logic functions, which type of PLD should be used? CO5- U

   (a) PLA (b) PAL (c) CPLD (d) SLD

PART – B (5 x 3= 15Marks)

6. Construct K Map for $F(A,B)=\Sigma(0,3)$? CO1- App
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)	Formulate the Boolean theorems and prove the following. (i) A+BA=A (ii) A+A'B=A+B (iii) AB+BC+B'C=AB+C	CO1-App	(16)
		Or		
	(b)	Express the following function in a simplified manner using K map technique. $F(X,Y,Z)= \Sigma(0,1,2,6,7)$.	CO1-App	(16)
12.	(a)	Design Full Adder and derive expression for Sum and Carry in Cin(X,y) with circuit 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)	Explain in detail about Static and dynamic RAM with neat diagram?	CO5-U	(16)
		Or		
	(b)	Explain in detail about EEPROM and EAPROM with neat diagram?	CO5-U	(16)