C   Reg. No. : [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Question Paper Code: U2205

B.E./B.Tech. DEGREE EXAMINATION, MAY 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   CO2- U
   only on the _____combination of inputs

   (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   CO3- U
   flip-flop toggles

   (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.   CO1-App   (16)
       (i) A+BA=A
       (ii) A+A'B=A+B
       (iii) AB+BC+B'C=AB+C

                              Or

    (b) Express the following function in a simplified manner using K map   CO1-App   (16)
        technique.
         F(X,Y,Z)= Σ(0,1,2,6,7).

12. (a) Design Full Adder and derive expression for Sum and Carry in   CO2-App   (16)
        Cin(X,y) with circuit diagram?

                              Or

    (b) Design a logic circuit that accepts a 4-bit binary code and converts   CO2-App   (16)
        it to 4-bit Gray code with input(B3,B2,B1,B0) and
        output(G3,G2,G1,G0)?

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   CO3-App   (16)
        its performances?

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   CO4-App   (16)
        example?

15. (a) Explain in detail about Static and dynamic RAM with neat   CO5-U   (16)
        diagram?

                              Or

    (b) Explain in detail about EEPROM and EAPROM with neat   CO5-U   (16)
        diagram?

U2205