C   Reg. No. :

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. What is the addition of the binary number 101001+ 010011=?   CO2-App

    (a) 010100   (b) 111100   (c) 000111   (d) 101110

2. How many outputs would two 8:3 line encoders, expanded to a 16:4 line encoder, have?   CO1-U

    (a) 3   (b) 4   (c) 5   (d) 6

3. The addressing mode, where you directly specify the operand value is _____   CO1-U

    (a) Immediate   (b) Direct   (c)Definite   (d) Relative

4.   Throughput is calculated as ____.   CO1-U

    (a) The number of instructions/ Total time to complete the instructions

    (b) Total time to complete the instructions/number of instructions

    (c) Speed of the processor/ Number of instructions

    (d) The number of instructions/speed of the processor

5. The performance of cache memory is frequently measured in terms of a quantity called ____.   CO1-U

    (a) Miss ratio   (b) Hit ratio   (c) Latency ratio   (d) Read ratio

PART – B (5 x 3= 15 Marks)

6. Convert $(1101.101)_2$ to decimal equivalent.   CO2-App

7. Difference between encoder and decoder.   CO1-U

8. Define Index addressing Mode.   CO1-U

9. What is locality of reference? CO1-U

10. What are static and dynamic memories? CO1-U

PART – C (5 x 16= 80 Marks)

11. (a) Convert the following:- CO2-App (16)
    i) 67110 to binary
    ii) 110102 to decimal
    iii) 01011112 to octal
    iv) 5112_{10} to hexadecimal

Or

    (b) Consider the function CO2-App (16)
    f(A,B,C,D) = ∑m (0,1,2,3,5,7,8,10,12,13,15) using
    Quine Mccluskey Method.

12. (a) Implement the following Boolean function using 4 X 1 MUX CO2-App (16)
    F(a, b, c, d) = ∑m(0,1, 3, 4, 8, 9, 15). Explain in detail.

Or

    (b) Implement the following Boolean function using 8:1 multiplexer CO2-App (16)
    F(A,B,C,D)=(A+B+$\overline{C}$).($\overline{A}$+B+$\overline{D}$).(A+$\overline{C}$+D).(B+C+D)

13. (a) Write the various types of instructions with an example. CO1-U (16)

Or

    (b) Explain various instruction format illustrate the same with an CO1-U (16)
    example

14. (a) Explain Hardware and Booths multiplication technique. CO1-U (16)

Or

    (b) What are the various hazards that might arise in a pipeline? CO1-U (16)
    Discuss how to reduce or minimize the hazards.

15. (a) Explain the need for cache memory and discuss the different CO1-U (16)
    types of mapping functions with necessary block diagram.

Or

    (b) Draw the neat sketch and explain the memory hierarchy and CO1-U (16)
    Memory technology.

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