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I Semester B.C.A. Degree Examination, March/April - 2023

COMPUTER APPLICATION

Computer Organization

(CBCS Scheme)

Paper : BCA 104T

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates:

Answer all the Sections.

SECTION - A

I. Answer any Ten of the following questions. Each question carries 2 marks. (10×2=20)

1. Define logic gate. Mention the basic logic gates.
2. Write the logic diagram and truth table of EX-OR and EX-NOR gate.
3. Define Minterm and Maxterm.
4. What is number system? List the types of number system.
5. Perform
 - a. $(11011+1001010)$.
 - b. (101×11) .
6. Define computer organization.
7. Convert $(10011)_2$ into Gray code.
8. Define operation code and operand.
9. Mention the phases in instruction cycle.
10. Explain the components of CPU.
11. Define auxiliary memory.
12. List the types of mapping procedures of cache memory.

[P.T.O.]



SECTION - B

- II. Answer any **Five** of the following questions. Each question carries **10** marks. ($5 \times 10 = 50$)
13. a) Explain universal property of NOR gate. (5)
b) Simplify $F(A, B, C, D) = \{\sum_m(1, 2, 4, 5, 6, 8, 9) + \sum_4(10, 11, 14, 15)\}$ using Karnaugh map. (5)
14. a) Explain Half adder with a neat logic diagram. (5)
b) Explain the working of clocked SR flip flop. (5)
15. Convert the following : (10)
a) $20.356_{(10)}$ to $(?)_2$.
b) $(10001011110)_2$ to $(?)_{16}$.
c) $(10.27)_{10}$ to $(?)_8$.
d) $(742)_8$ to $(?)_{16}$.
e) $(41.6)_{10}$ to $(?)_2$.
16. Explain the design of basic computer with flowchart. (10)
17. Explain common bus system with a neat diagram. (10)
18. a) Explain the types of CPU organization. (5)
b) Explain data transfer instructions. (5)
19. a) Explain virtual memory. What is the advantage of using Virtual memory? (5)
b) Explain error detection and error correction codes. (5)
20. a) Write a note on main memory. (5)
b) Explain the working of DMA with a neat diagram. (5)
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