Duration: 3hr15 minutes   **Max.Marks**: 70

Part-A

I.   **Answer all the Questions.**   10×1=10M

1.   What is microprocessor?

2.   What is logic gate?

3.   Define array.

4.   Which type of data member can be accessed outside the class?

5.   Mention any one advantage of pointer.

6.   What is a record?

7.   What is WAN?

8.   What is a server?

9.   Mention any one type of e-commerce.

10. Expand XML.

Part-B

II.   **Answer any five questions. Each question carries two marks.**   **5 × 2 = 10M**

11. What is the complement of AB+CD.

12. Prove that $x.\bar{x}=0$ by perfect induction method.

13. Define data abstraction and data encapsulation.

14. Write the features of default constructor.

15. Differentiate between read( ) and write( ) with respect to files in c++.

16. What is data independence? Mention the types of data independence.

17. Differentiate order by and group by clause in SQL.

18. What is communication mode? Explain simplex mode.

Part-C

III.   **Answer any five questions. Each question carries three marks.**   **5 × 3 = 15M**

19. What is the purpose of UPS? Mention different types of UPS.

20. Realize AND, OR, NOT gates using NOR gate.

21. Write an algorithm to insert an element into an 1 D array.

22. What are the operations performed on pointers?

23. Give the functions of the following with respect to files in c++.

      i.   get ( )

     ii.   getline ( )

    iii.   put ( )

24. Mention different database models. Explain any one.

25. Give the advantages of e - commerce.

26. What is web hosting? Mention various web hosting services.

Part-D

IV.   **Answer any seven questions. Each question carries five marks.**   **7 × 5 = 35M**

27. Simplify the following boolean function using k-map

$F(A,B,C,D) = \sum(1,2,3,5,7,8,9,11,13,15)$

28. Write an algorithm to insert and delete an element from a queue data structure.

29. Define the following:

      i.   Root node.

     ii.   Leaf node.

    iii.   Edge.

    iv.   Binary tree.

     v.   Tree.

30. Write the applications of OOPS.

31. Explain array of objects in C++.

32. What is friend function? Write the characteristics of a friend function.

33. What is copy constructor? Explain with syntax and programming example.

34. Write a C++ program to accept student regno, name and marks in 2 subjects and find the total marks using the concept of Single level Inheritance.

35. What is data warehouse? Briefly explain its components.

36. Explain any 5 relational operators in SQL with suitable examples.

37. Write a note on network topologies.

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