DECEMBER 2022 **P/ID 16301/PIT1A/ PCATA**

Time : Three hours Maximum : 80 marks

PART A — (10 × 2 = 20 marks)

Answer any TEN questions.

1. Write a C++ program code segment to find whether the given number is odd or even.

2. Differentiate between while and do-while loops.

3. What is the purpose of a function prototype?

4. Define multiple inheritance. Give its syntax.

5. Define the term destructor.

6. Differentiate between linear and non-linear data structure.

7. Define the term ordered list.

8. What are the two ways to open a file in C++?

9. What is a Circular Queue?

10. Define the term recursion.

11. What do you mean by hash function?

12. Write the meanings of the terms strongly and weekly connected edges in a graph?

PART B — (5 × 6 = 30 marks)

Answer any FIVE questions.

13. Explain inline function with an example program.

14. Write short notes on:

    (a) Variables

    (b) Identifiers

15. Discuss on hybrid inheritance with suitable program.

16. Write short notes on Asymptotic notations.

17. How to detect an end-of-file? Explain with an example program.

18. Write an algorithm to insert and delete a given node from doubly linked list.

19. With an example explain the algorithm that converts a general tree to binary tree.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

20. Discuss the various operators available in C++.

21. Discuss the following with suitable program:

    (a) Default constructor

    (b) Copy constructor

22. Explain the following functions with suitable example:

    (a) seekg()

    (b) seekp()

    (c) tellg()

    (d) tellp

23. Explain the process of conversion from infix expression to postfix expression using a stack.

24. Explain Dijkstra's algorithm to find the shortest path in a weighted graph. Illustrate with an example.

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