DECEMBER 2020 **P/ID 16301/PIT1A/ PCATA**

Time : Three hours Maximum : 80 marks

PART A — ($10 \times 2 = 20$ marks)

Answer any TEN questions.

1. Define polymorphism.
2. List out manipulators in C++.
3. What is abstract class?
4. Distinguish between Constructor and Destructor.
5. Specify the purpose of storing data in file.
6. Define data structure. Give example.
7. Is it possible to implement a linked list without using pointer variable? Justify.
8. What is recursion? Give example.
9. List out the applications of stack.
10. Draw the structure of doubly linked list.
11. Define height of a tree.
12. How to find degree of a vertex in a graph?

PART B — ($5 \times 6 = 30$ marks)

Answer any FIVE questions.

13. List and explain the statement used in repetitive control structure in C++.

14. Discuss the syntax and uses of argc and argv.

    write a C++ program to find maximum of three numbers using command line arguments.

15. Explain hierarchical inheritance with example.

16. Write a C++ program to print the content of a file.

17. Write an algorithm to count number of nodes in a linked list.

18. Explain the structure of circular queue.

19. Define hashing. Explain mid square hashing method.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

20. Explain call by value and call by reference with an example.

21. Define constructor. Explain various types of constructors in C++ with an example.

22. Explain various types of asymptotic notations.

23. Describe method of adding two polynomials using linked list.

24. Write Dijkstra's shortest path algorithm.

Apply Dijkstra's algorithm from a to e for an undirected, weight graph as shown below.