Question Paper Code: 98623         B.E./B.Tech. DEGREE EXAMINATION, NOV 2022         Sixth Semester         Information technology         19UTT623- OBJECT ORIENTED PROGRAMMING AND DATA STRUCTURES         Regulations 2019)         Duration: Three hours         Maximum: 100 Marks         Answer All Questions         PART A - (10x 2 = 20 Marks)         1.         What is the purpose of using virtual functions?         CO1- U         Question anaray over linked list         CO1- U         4.         A statement.         CO1- U         A statement.         CO1- U         4.         A statement.         CO1- U         4.         CO1- U         A statement.         CO1- U         A statement.         CO1- U         A statement.         CO1- U         A statement.       CO1- U       CO1- U       <		Reg. No. :		
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		PART – B $(5 \times 16 = 80 \text{ Marks})$		
and Destructor using C++	11.	(a) Write an algorithm and a program to implement the Constructor CO2 and Destructor using C++	2-App (16)	
Or (b) Write an algorithm and a program to implement hybrid inheritance CO2-App (16)			$\Lambda nn$ (16)	

(b) Write an algorithm and a program to implement hybrid inheritance CO2-App (16) using C++.

12. (a) Compare and Contrast the various functionalities of types of CO3-Ana (16) Linked list with types of Queues.

Or

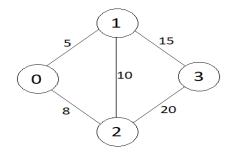
- (b) Analyze the operations of list ADT with stack ADT CO3-Ana (16)
- 13. (a) Differentiate the methodologies used in BFS and DFS with an CO1-U (16) example

Or

- (b) Differentiate the functionalities of Binary trees and AVL trees with CO1-U (16) an example
- 14. (a) Construct a binary search tree for the given list of number CO2-App (16) 8,18,25,11,14,4,18,31,45,22,35,49

Or

(b) Apply Kruskals algorithm for the given weighted graph and find CO2-App (16) the cost of the graph



15. (a) Write a C++ program to insert an element to circular queue and CO2- App (16) delete an element from a circular queue using array implementation.

## Or

- (b) Data[] is an array that is declared as CO2- App (16) int Data[20]; and contains the following values: Data[] = {12, 32, 43, 54, 65, 74, 78, 89, 95, 100};
   (a) Calculate the length of the array.
  - (b) Find the upper bound and lower bound.

(c) Show the memory representation of the array.

(d) If a new data element with the value 62 has to be inserted, find its position.

(e) Insert a new data element 105 and show the memory representation after the insertion.