U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

April 2024 Semester End Main Examinations

Programme: B.E. **Semester: III**
Branch: Electronics and Telecommunication Engineering **Duration: 3 hrs.**
Course Code: 23ET3ESCDS **Max Marks: 100**
Course: C++ and Data Structures

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

				CO	PO	Marks
			UNIT - I			
1	a)		With an example the concept of C++ class and object.	CO1		**05**
	b)		Explain the benefits of object oriented programming in comparison to procedure oriented programming.	CO1		**05**
	c)		Explain the basic concepts of object oriented programming in detail with example.	CO1		**10**
			UNIT - II			
2	a)		What is overloading? Explain function overloading and operator overloading with an example program and a sample output.	CO2	PO1	**10**
	b)		What are the characteristics of a constructor in C++? Explain copy constructor with a suitable example.	CO2	PO1	**10**
			UNIT - III			
3	a)		What is inheritance? Explain hybrid inheritance with suitable C++ coding.	CO3	PO2	**10**
	b)		Discuss the need for exception with try, catch and throw keywords.	CO3	PO2	**10**
			UNIT - IV			
4	a)		Define stack. Implement the operations of stack using arrays.	CO4	PO3	**10**
	b)		Write a C++ program to implement single linked list operations.	CO4	PO3	**10**
			OR			
5	a)		Define queue. Implement the operations of queue using arrays.	CO2	PO1	**10**
	b)		Implement stack operations using single linked list.	CO2	PO1	**10**
			UNIT - V			
6	a)		What is double hashing? Compare: Quadratic probing and double hashing What is rehashing? Explain in detail.	CO5	PO5	**10**

		b)	Define binary tree. With a suitable example explain the concept of binary tree traversal in different orders.	*CO5*	*PO5*	**10**
			OR			
	7	a)	Define skip list and explain the search operation.	*CO1*		**05**
		b)	Demonstrate heap sorting with an example.	*CO1*		**05**
		c)	Implement binary tree traversal mechanisms in C++.	*CO2*	*PO1*	**10**

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