GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI EXAMINATION – SUMMER 2025

Subject Code:3160922   **Date:26-05-2025**
Subject Name:Object Oriented Programming
Time:10:30 AM TO 01:00 PM   **Total Marks:70**
Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	Discuss arithmetic operators in C++ programing.	**03**
	(b)	What is namespace? What is "**namespace std"** explain it in detail and also elaborate the concept by creating your own namespace.	**04**
	(c)	Enlist Distinguishing features of Object-oriented programing, and justify any two of the features.	**07**
Q.2	**(a)**	Classify IO Stream Library	**03**
	(b)	Give the applications of any one Manipulators in file operation	**04**
	(c)	Explain New and delete operator, along with sample program. Also differentiate it with C language equivalent implementation.	**07**
		OR	
	(c)	Distinguish between the following terms: (a) Objects and classes, (b) Data abstraction and data encapsulation, (c) Inheritance and polymorphism, (d) Dynamic binding and message passing	**07**
Q.3	**(a)**	Explain static data member and static member function. With a suitable program code?	**03**
	(b)	What is friend function? Explain with a suitable example.	**04**
	(c)	Write a program using C++ which calculates squares of all even number,	**07**
		OR	
Q.3	**(a)**	Discuss the application of Destructors and give example for the same.	**03**
	(b)	Explain function call by value, call by pointer and call by reference.	**04**
	(c)	What do you mean by function prototype, function call, function arguments and function returntype.	**07**
Q.4	**(a)**	Discuss the concept of data encapsulation using a program of C++ .	**03**
	(b)	Explain virtual funtions.	**04**
	(c)	Write a program using C++ exhibiting constructors usage for initializing volume paramters and function polymorphism for calculating volume of cube, cylinder, and rectangular box.	**07**
		OR	
Q.4	**(a)**	What is friend function? Explain with a suitable example.	**03**
	(b)	What do you mean by inheritance ? Give classification for the same.	**04**
	(c)	Explaing single level inheritance using a C++ program.	**07**
Q.5	**(a)**	Explain pointer with example.	**03**
	(b)	Write down the rules for implementing operator overloading.	**04**

(c) Define a class to represent a GTU student account. include the following **07**
Data members:
1. Name of the Student.
2. Enrollment number.
3. Gender
4. Mobile Number.
5. Marks of 5 subjects
Member functions:
1. To assign initial value to 1st four data members.
2. To display the marks of particular student.
3. To display full details of the students along with the marks.

Also write a main function to test the program.

OR

Q.5 **(a)** List various access specifiers of C++ language, and explain all of them in short **03**
(b) Explain the exception handling of C++ language. **04**
(c) Write a program in C++ for addition of two time frames given in HH:MM:SS stored in objects t1 and t2 respectively and t3 saves the result. **07**

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