

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2021****Subject Code:2140705****Date:08/09/2021****Subject Name:Object Oriented Programming With C++****Time:02:30 PM TO 05:00 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) Describe any three characteristics of OOP	03		
	(b) Explain >> and << operators.	04		
	(c) Explain merits and demerits of inline functions.	07		
Q.2	(a) Explain call by reference with a program.	03		
	(b) Explain default arguments with example	04		
	(c) Given that an EMPLOYEE class contains following members: data members: Employee number, Employee name, Basic, DA, Net Salary and print data members.	07		
OR				
	(c) Write a C++ program to implement function overloading in order to compute power(m, n) where	07		
	(i) m is double and n is int			
	(ii) m and n are int.			
Q.3	(a) Explain reference variables.	03		
	(b) Explain the use of C++ operators: new and delete.	04		
	(c) Create a class 'COMPLEX' to hold a complex number. Write a friend function to add two complex numbers. Write a main function to add two COMPLEX objects.	07		
OR				
Q.3	(a) Explain 'this' pointer' with example.	03		
	(b) Describe the use of destructors with example.	04		
	(c) Create a 'MATRIX' class of size m x n. Overload the '+' operator to add two MATRIX objects. Write a main function to implement it.	07		
Q.4	(a) Describe abstract class with example.	03		
	(b) Differentiate the keywords 'protected' and 'public'.	04		
	(c) A file contains a list of names and telephone numbers in the following form:	07		
<table><tr><td style="text-align: center;">Name</td><td style="text-align: center;">Tel. No.</td></tr></table>			Name	Tel. No.
Name	Tel. No.			
Write a C++ program to read the file and output the list in the tabular format. The name should be left-justified and numbers right-justified. Use a class object to store each set of data.				
OR				
Q.4	(a) Explain the concept of virtual base class.	03		
	(b) Explain hybrid inheritance with example.	04		

- (c) Create a base class called 'SHAPE' having **07**
 - two data members of type double
 - member function get-data() to initialize base class data members
 - pure virtual member function display-area() to compute and display the area of the geometrical object.
 Derive two specific classes 'TRIANGLE' and 'RECTANGLE' from the base class. Using these three classes design a program that will accept dimension of a triangle / rectangle interactively and display the area.
- Q.5** (a) Explain flags ios::binary and ios::ate. **03**
 (b) Explain try, catch and throw. Give one simple example. **04**
 (c) Write a C++ program to swap data using function template. **07**
- OR**
- Q.5** (a) Discuss Standard Template Library. **03**
 (b) Explain tellg and seekp functions. **04**
 (c) Write a C++ program that uses function templates to find the largest and smallest number in a list of integers and to sort a list of numbers in ascending order **07**
