

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2018

**Subject Code: 2140705**
**Date: 12/12/2018**
**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.

		MARKS
Q.1	(a) Differentiate Object Oriented Programming (OOP) and Procedure Oriented Programming (POP).	03
	(b) Write a C++ program to find out the sum and average of three numbers using nesting of member function.	04
	(c) Describe the basic structure of a C++ program with all necessary blocks.	07
Q.2	(a) When can you make function inline? What are the advantages of making function inline?	03
	(b) Following is a main() program. void main() { time T1; int duration = 85; T1 = duration; } Where time is a class which contains variables hrs and minutes. duration stores total time in minutes. Define a class time with necessary functions to break up the duration in maximum hours and remaining minutes and store them into hrs and minutes respectively.	04
	(c) Write a C++ program that overloads + operator to add two complex numbers.	07
	OR	
	(c) Write a C++ program to find volume of cube, cylinder and rectangular box using concepts of function overloading. (volume of cube = $s^3$ , volume of cylinder is $\pi * r^2 * h$ , volume of rectangular box is $l * b * h$ )	07
Q.3	(a) An unsigned int can be twice as large as the signed int. Explain how?	03
	(b) Write a C++ program to swap the values of pair of integers using function and call by reference.	04
	(c) Explain various forms of inheritance with suitable diagrams and example of each.	07
	OR	
Q.3	(a) Differentiate structure and class in C++.	03

- (b) Consider following class declarations. 04
- ```

class ABC;
class XYZ{
int x;
public:
void get_x(int i) {x=i;}
friend void sum(XYZ,ABC);
};
class ABC{
int y;
public:
void get_y(int i) {y=i;}
friend void sum(XYZ,ABC);
};
  
```
- By considering above class declarations, define a function sum() at outside the class to find out the sum of x and y and display the result. Also define the main() which satisfy above class declarations.
- (c) List out the characteristics of constructor in C++. Write a program to illustrate the use of copy constructor. 07
- Q.4**
- (a) Differentiate between late binding and early binding. 03
- (b) Describe different ways to open file with suitable example. 04
- (c) Define polymorphism? How is it achieved in C++? Explain with suitable example. 07
- OR
- Q.4**
- (a) Describe the syntax and use of set () function with suitable example. 03
- (b) Explain virtual base class with a program. 04
- (c) Demonstrate the use of static variables and static functions with a program. 07
- Q.5**
- (a) Describe the significance of *this* pointer with suitable example. 03
- (b) Explain following file modes. 04
- a. ios::app b. ios::out c. ios::binary d. ios::nocreate
- (c) Define Exception? Explain Exception Handling Mechanism. Write a program that demonstrates use of multiple catch. 07
- OR
- Q.5**
- (a) Explain pure virtual function with suitable example. 03
- (b) Describe the various approaches by which we can detect the end of file condition. 04
- (c) Write a C++ program to copy the contents of a file *A.txt* into another file *B.txt*. 07

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