

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
BTech Winter 2022-23, Examination

Semester :2/3**Subject Code: 203105337****Subject Name: Object Oriented Programming with C++****Date: 22/10/2022****Time: 2.00 pm to 4.30 pm****Total Marks: 60**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (All are compulsory)**(15)**

1. Identify the operator from the following to illustrate the feature of polymorphism?
 - a) Overloading <<
 - b) Overloading &&
 - c) Overloading ||
 - d) Overloading +=
2. Which of the following OOP concept binds the code and data together and keeps them secure from the outside world?
 - a) Polymorphism
 - b) Inheritance
 - c) Abstraction
 - d) Encapsulation
3. Which member of the superclass is never accessible to the subclass?
 - a) Public member
 - b) Protected member
 - c) Private member
 - d) All of the mentioned
4. Objects are the variables of the type ____?
 - a) String
 - b) Boolean
 - c) Class
 - d) All data types can be included
5. Why classes are known as abstract data types (ADT)?
 - A. Because classes are user-defined data types
 - B. Because it supports the theory of hierarchical classification
 - C. Because it allows dynamic binding
 - D. Because it uses the concept of data abstraction
6. _____ member variables are initialized to zero when the first object of its class is created?
7. _____ access specifier makes the class member accessible outside the class but can be accessed by any subclass of that class?
8. The default visibility mode in inheritance is ____?
9. Templates support generic programming, which allows to develop reusable software components
10. catch(...) will catch any exception no matter what the type of the exception thrown
11. Write the simplest class possible that does nothing.
12. _____ operator is used to identify which data/functions members belong to which class
13. Destructor can be virtual. True/False.
14. We can create an object of abstract class type. True/False.
15. An object cannot invoke a private function using the dot operator: True/False

Q.2 Answer the following questions. (Attempt any three)**(15)**

- A) Define Polymorphism and Explain Types of polymorphism with example.
- B) Explain Inline function with suitable example.
- C) Explain Benefit and Application of OOP.
- D) Explain Constructor and different types of constructor.

Q.3 Assume that Circle is defined using radius and Cylinder is defined using radius and height. (07)
Write a Circle class as base class and inherit the Cylinder class from it. Develop classes such that user can compute the area of Circle objects and volume of Cylinder objects. Area of Circle is $\pi * \text{radius} * \text{radius}$, while volume of Cylinder is $\pi * (\text{radius} * \text{radius}) * \text{height}$.

B) Explain various forms of inheritance with suitable diagrams and Example. (08)

OR

B) Explain templates in C++ and how they work? Write down the types of templates and their syntax. (08)

Q.4 A) What are different data types used in C++. Explain at least 5 data types with example. (07)

OR

A) Explain File stream class and File Management Functions. (07)

B) Write a program to find the mean value of a given number using the friend function. (08)