

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)

Chromepet, Chennai — 600 044.

BCA END SEMESTER EXAMINATIONS NOVEMBER -2023

SEMESTER - II

20UACT2002 - Object Oriented Programming in C++

Total Duration : 2 Hrs 30 Mins.

Total Marks : 60

Section B

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. Interpret the concept of inheritance and its role in code reusability.
2. Compute the benefits of polymorphism to achieve flexibility and extensibility in code.
3. Relate the relationship between "variables" and "identifiers" with respect to the storage and referencing of data within a C++ program.
4. Write a C++ program that demonstrates the use of control structures (if-else, switch) to determine the grade of a student based on their score.
5. Give an example of operator overloading in C++ by overloading the '+' operator for a class representing complex numbers. Show the steps to perform addition operation using this overloaded operator.
6. Compute the result when calling an overloaded function to calculate the area of a rectangle using varying sets of parameters such as length and width.
7. Describe the relationship between a base class and a derived class in inheritance with an example in C++.
8. Diagnose the potential consequences of neglecting error handling during file operations. How can unchecked errors lead to data corruption or program crashes?

Section C

Answer any **THREE** questions ($3 \times 10 = 30$ Marks)

9. Show the process of creating an instance of a class and accessing its attributes in C++.
10. Given a C++ function that calculates the factorial of a number, write the corresponding function prototype and call the function from 'main ()'.

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11. Infer the significance of constructors within Classes and their contribution towards initializing attributes of objects in C++.
12. Apply the concept of polymorphism by designing a C++ program that uses a base class "Shape" with virtual functions for calculating area. Create derived classes "Circle" and "Rectangle" that override these functions to calculate area based on their specific attributes.
13. Organize the steps to create a program that appends new information to an existing file without overwriting its content in C++.
