

Abeda Inamdar Senior College

(Autonomous)



Booklet of Practical Skeleton Papers for

B.C.A (Science) 2021 Pattern

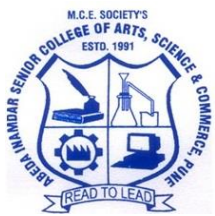
Credit System Syllabus

(From June-2021)

S.Y.B.C.A (Science)

SEMESTER–III

**PAPER- 21SBCA234-LAB-I-Object Oriented Programming Using
C++**



M.C.E. Society's

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S.Y.B.C.A. (SCIENCE) PRACTICAL EXAMINATION OCT / APRIL 20__

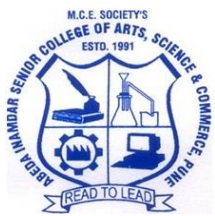
PAPER- 21SBCA234-LAB-I-Object Oriented Programming Using C++

(Semester-III, 2021 pattern) Credits: 1.5

Duration: 3hrs

Max Marks: 30

- A. Write a C++ program to print area of a circle, square and rectangle using inline function. [10]
- B. Write a C++ program to implement function overloading in order to compute power(m,n) where [15]
- a. m is double and n is int
 - b. m and n are int
- C. External Viva [5]



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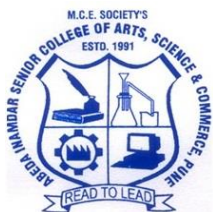
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- A. Write a C++ program that takes two numbers from the user (a base number and an exponent) and calculates the power. **[10]**
- B. Write a C++ program to create a class Student which contains data members as R_Num, S_Name, Percent. Write member functions to accept Student information. Display all details of student along with a class obtained depending on percentage. (Use array of objects) **[15]**
- C. External Viva **[5]**



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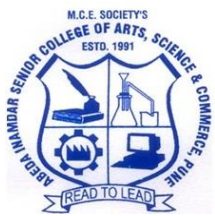
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-
- A. Write a C++ program to display factors of a number. **[10]**
- B. Write a C++ program to create a class Person that contains data members as Person_Name, City, and Mob_No. Write a C++ program to perform following functions:
- a. To accept and display information of 10 persons
 - b. To search the mobile number of a given person **[15]**
- C. External Viva **[5]**



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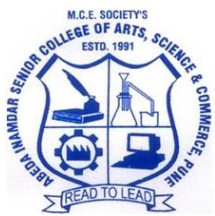
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- A. Write a C++ program to create a class Integer. Write necessary member functions to overload the operator unary (++) for an Integer number. [10]
- B. Write a C++ program to create a class Person that contains data members as Person_Name, City, and Mob_No. Write a C++ program to perform following functions: [15]
- a. To accept and display information of 10 persons
 - c. To search the Person details of a given mobile number
- C. External Viva [5]



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- A. Write a C++ program to calculate volume of cube, cylinder and Sphere using function overloading. **[10]**
- B. Write a C++ program to create a class Novel which contains data members as id, name and author. Write member functions to accept and display novel information. Also display the count of novels (use static data member to maintain the count of novel) **[15]**
- C. External Viva **[5]**



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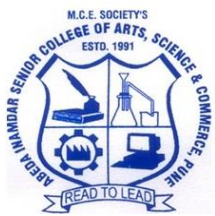
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- A. Write a C++ program for finding area of right angled triangle, isosceles triangle and equilateral triangle using function overloading concept. **[10]**
- B. Write a C++ program to create a class Book that contains data members as B_Name, Author, Price. Write a program to perform the following functions
- a. To accept and display Book information.
 - b. Search book name of a given author. **[15]**
- C. External Viva **[5]**



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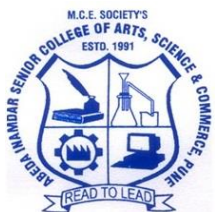
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- A. Write a function called `smalltozero()` that has two integer arguments being passed by reference and it sets the smaller of the two numbers to 0. Write the main program to access the function. **[10]**
- B. Write a C++ program to create a class `Book` that contains data members as `B_Name`, `Author`, `Price`. Write a program to perform the following functions
- a. To accept and display `Book` information.
 - b. Search price of a given book. **[15]**
- C. External Viva **[5]**



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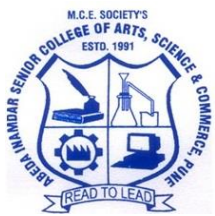
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- A. Write a C++ program to create class to read time in HH:MM:SS format and display in seconds. **[10]**
- B. Write a C++ program to create a class Part which contains data members as Part_Id, P_Name, P_Price. Create and Initialize all values of Part object using parameterized constructor and copy constructor. Display the values of Part object. **[15]**
- C. External Viva **[5]**



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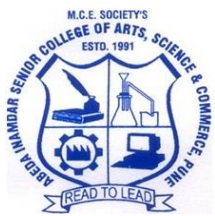
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- A. Write a function that receives two numbers as an argument and display all odd numbers between these two numbers. Call this function from main (). **[10]**
- B. Write a friend function for square matrix that interchanges the elements of mth and nth column. **[15]**
- C. External Viva **[5]**



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- A. Write a C++ program to accept length and width of a rectangle. Calculate and display perimeter as well as area of a rectangle by using Inline function. **[10]**

- B. Design a base class Item (Item_Id, Item_Name, and Price). Derive a class Discount (Discount_In_Percentage) from Item. A customer buys 'n' different items. Calculate total price, total discount and display bill. **[15]**

- C. External Viva **[5]**



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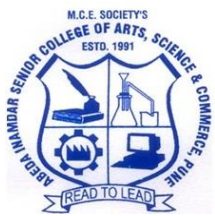
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- A. Write a C++ program to accept and display employee information (e_no, e_name, e_designation) using “this” pointer. **[10]**
- B. Write a C++ Write a C++ program to create a class Worker with data members as Worker_Name, No_of_Hours_worked, Pay_Rate. Write necessary member functions to calculate and display the salary of worker. **[15]**
- C. External Viva **[5]**



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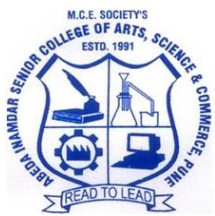
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Max Marks: 30

-
- A. Write a C++ program to create a class Integer. Write necessary member functions to overload the operator unary (--) for an Integer number. [10]
- B. Create a base class Media. Derive two different classes Book (Book_id, Book_name, Publication, Author, Book_price) and CD (CD_title, CD_price) from Media. Write a C++ program to accept and display information of both Book and CD. [15]
- C. External Viva [5]



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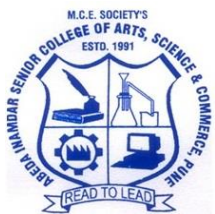
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Duration: 3hrs

Max Marks: 30

-
- A. Write a C++ program using class Circle to calculate area. (Use parameterized constructor with default value for PI) [10]
- B. Create a base class Conversion. Derive three different classes Weight (Gram, Kilogram), Volume (Milliliter, Liter), Currency (Rupees, Paise) from Conversion class. Write a C++ program to perform read, convert and display operations. [15]
- C. External Viva [5]



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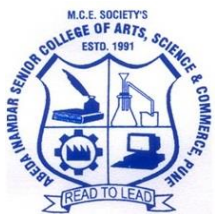
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Duration: 3hrs

Max Marks: 30

-
- A. Write a C++ program to create a class Integer. Write necessary member functions to overload the operator Binary (+) for Integer numbers. [10]
- B. The file 'cities.txt' contains names of cities and their STD codes. Define a class 'city' with data members name and STD code. Read data from file and display the list of names and STD codes. [15]
- C. External Viva [5]



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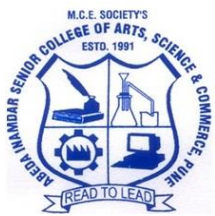
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-
- A.** Write a C++ program to create a class Integer. Write necessary member functions to overload the operator Binary (-) for Integer numbers. **[10]**
- B.** Write 50 random numbers in a file "AllNumbers" in increasing order (using editor). Write a program to copy even numbers from this file into the file "Even" and odd numbers into the file "Odd". **[15]**
- C.** External Viva **[5]**



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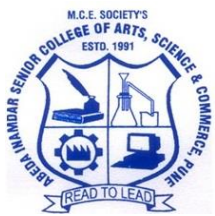
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-
- A. Write a C++ program to subtract two integer numbers of two different classes using friend function. [10]
- B. Write a C++ program to create a file “abc.txt” with some content. Copy the content of this file in “pqr.txt”. [15]
- C. External Viva [5]



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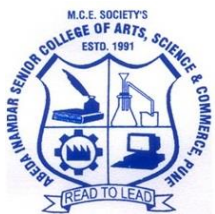
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- A. Write a C++ program to create two classes Circle1 and Circle2. Compare area of both the circles using friend function. **[10]**
- B. Create a base class Conversion. Derive three different classes
Weight (Gram, Kilogram),
Volume (Milliliter, Liter),
Currency (Rupees, Paise) from Conversion class.
Write a C++ program to perform read, convert and display operations. (Use Pure virtual function) **[15]**
- C. External Viva **[5]**



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- A. Write a C++ program to find factorial of a given number. **[10]**

- B. Create a class called LIST with two pure virtual function store() and retrieve(). To store a value call store() and to retrieve a value call retrieve() function. Derive two classes stack and queue from it and override store and retrieve. **[15]**

- C. External Viva **[5]**



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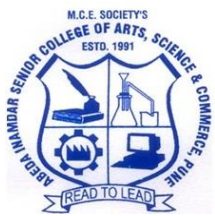
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-
- A. Write a C++ program to create a class Employee that has data members as Employee_number, Employee_Name, Designation, Salary. Create and initialize the object using default constructor, parameterized constructor and copy constructor and display all the details. **[10]**
- B. A book(ISBN) and CD(data capacity) are two types of media(id, title) objects. A person buys 10 media items, each of which can be either book or CD. Display the list of all books and CDs bought. Define the classes and appropriate member functions to accept and display data. Use pointers and concepts of polymorphism (virtual functions). **[15]**
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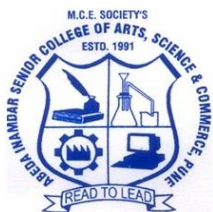
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- A. Write a C++ program to create a text file to stores Student Objects (rollno, name, TotalMarks). Accept details from user. **[10]**
- B. Write a C++ program to create a class Department which contains data members as Dept_Id, Dept_Name, H.O.D., Number_Of_Staff. Write necessary member functions to
- i. Accept details from user for 'n' departments and write them in a file "Dept.txt".
 - ii. Display details of a department from file **[15]**
- C. External Viva **[5]**



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