BE 1ˢᵗ Year Examination
February March 2023
Electronics and Telecommunication (Section A & B)
COR2C5
Introduction to Computer Programming

Time: 3 Hrs   **Max.Marks: 60**

Note: Attempt any 2 parts of each question, all questions carry equal marks.

1 a) Compare and contrast between C language and C++ language.

b) Write a C++ program to print the sum of first n natural numbers. (n has to be entered by user).

c) Write a C++ program find out whether the number given by user is an Armstrong number or not.

2 a) Differentiate between Call by value and Call by reference with the help of swapping of numbers.

b) Write a C++ program to find out whether the entered number is prime or composite, using a function.

c) Write a recursive C++ program for printing Fibonacci series up to n terms (given by user).

3 a) Write a C++ program to check whether the entered string is palindrome or not using function.

b) Do as directed:
   i. Declare structure "Distance" with data members: feets and inches. Declare pointer to the structure and use it for printing the distance as feets and inches.
   ii. Declare an int pointer & float pointer. Dynamically allocate the memory using "new" operator. Assign the values, print them and then deallocate memory using " delete" operator.

c) Write a C++ program to find average of numbers in an array.

4 a) Describe in detail the concept of Friend function and Friend class with help of an example.

b) Write C++ code for creating class named "Shape", having overloaded function "area ()" to calculate area of Shape Objects: rectangle, square, circle.

c) Write C++ code for creating class named "Account" for allowing to work like in Banking System and having:

    i. private data members: account_number, customer_name, account_balance, withdraw_amount, deposit_amount

    ii. public member functions: get_data (), deposit (), withdraw (), display ().

    iii. public parameterized constructor (for initialing account_balance=5000)

5 a) What do you mean by Inheritance? Explain with its types and example of each.

b) Write C++ code for creating class named "Complex" which allows addition of two complex numbers using the overloaded operator + (binary addition). Overloaded constructor should be used to assign/initialize the real and imaginary parts of complex number

c) Write C++ code for creating class "Student" publicly inherited from class "Person". The Class Person has:

    i. private data members: name, age, gender.

    ii. public member functions: getdata (), printdata ().

Class Student has

    i. private data members: grade, section, marks in 5 subjects

    ii. public member functions: getdata (), printdata (), result ().

Get name, age, gender, grade, section, marks from user, find the result and print it.

[Hint: Use of function over-riding.]