Roll No. ……..

BCA–C202

B. C. A. (Second Semester)

EXAMINATION, 2022-23

OBJECT ORIENTED PROGRAMMING USING C++

Time : $2\frac{1}{2}$ Hours

Maximum Marks : 60

Note : All questions have to be attempted.

Section—A

1. Multiple choice questions : 1 each

   (a) Select the valid library file for standard input and output in C++. (CO1, BL1)

   (i) #include <io.h>

   (ii) #include <stdio.h>

   (iii) #include <iostream.h>

   (iv) #include <inputoutuput.h>

(b) One of the basic concepts in Object Oriented Programming approach is bundling both data and functions into one unit known as : (CO1, BL2)

(i) Encapsulation

(ii) Variable

(iii) Inheritance

(iv) Exception

(c) A function declared within a class is called as a : (CO2, BL2)

(i) Class function

(ii) Member function

(iii) Inline function

(iv) Object function

(d) Two different data type variables can be compared by applying : (CO3, BL2)

(i) Typcasting

(ii) Equating

(iii) Operator overloading

(iv) Operator comparison

(e) Class members are : (CO2, BL2)

(i) Public by default

(ii) Private by default

(iii) Protected by default

(iv) Inherited by default

(f) ..... is used to declare and initialize an object from another object. (CO3, BL3)

(i) Constructor

(ii) Destructor

(iii) Inheritance

(iv) Copy constructor

(g) ..... variables are normally used to maintain values common to the entire class.

(CO3, BL2)

(i) Static

(ii) Dynamic

(iii) Public

(iv) Private

(h) A class inherit properties from more than one class which is known as : (CO4, BL3)

(i) Single inheritance

(ii) Multiple inheritance

(iii) Diamond inheritance

(iv) Inheritance

(i) Which of the following functions can directly access the private and protected data ?

(CO4, BL3)

(i) Friend functions and the member functions of a friend class.

(ii) Member functions of the class only

(iii) Friend functions

(iv) Functions of the derived class

(j) Function overloading is a kind of : (CO4, BL4)

(i) Inheritance

(ii) Early binding

(iii) Late binding

(iv) Friend function

(k) #include <lostream> (CO5, BL5)

```
int main() {
int a,b;
a=5+3*5;
b=++a;
std : : cout<<b;
return 0;
return 0;
}
```

(i) 21

(ii) Error

(iii) 20

(iv) 19

(l) Which of the following is best to apply when we know the number of iterations ? (CO2, BL5)

(i) while loop

(ii) do while loop

(iii) for loop

(iv) if loop

2. Attempt any *four* of the following (short answer type questions) : 3 each

   (a) Illustrate object-oriented programming. How is it different from the procedure-oriented programming ? (CO1, BL4)

   (b) When will you make a function inline ? Why ? (CO2, BL5)

   (c) Differentiate constructors and destructors. (CO2, BL2)

   (d) Explain an abstract class and its uses. (CO3, BL1)

   (e) Describe the advantages of exception handling. (CO4, BL2)

Section–B

3. Attempt any *two* of the following : 6 each

   (a) Develop a program to demonstrate the concept of friend function. (CO2, BL5)

   (b) Explain the advantages of constructors and list the different types of constructors. (CO2, BL3)

   (c) Develop a program using array of objects for accepting and displaying the multiple datasets of student class; student class should have the data members as Std_Id and Std_name. (CO2, BL5)

4. Attempt any *two* of the following : 6 each

(a) Design three classes named student, test, and results, where results class inherits from test class and test class inherits from student class. Assume the necessary data members and member functions for the program. (CO3, BL5)

(b) Explain the concept of function overloading through an example program (CO3, BL4)

(c) Explain multiple and multi-level inheritance concepts. (CO3, BL4)

5. Attempt any *two* of the following : 6 each

(a) How does polymorphism promote extensibility ? Explain the various types of polymorphism with a program ? (CO4, BL4)

(b) Define the terms virtual base class and its implementation in C++. How is it used in function overriding ? (CO4, BL4)

(c) Discuss the advantages of object-oriented programming. Write a program to check input number is prime or not. (CO2, BL6)