2315

Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD (now MoE)
Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC
Coimbatore-641043, Tamil Nadu, India

Bachelor's Degree Examination - May 2025
II Semester

Class : I UG | **Time : 3 Hours**
Major : B.Com Computer Applications | **Max. Marks : 100**

23BCCC05 Programming with C++

Course Outcomes:

CO1: Demonstrate the concepts of object oriented programming.
CO2: Define control flow statements to construct a program.
CO3: Impart knowledge on dynamic memory management.
CO4: Employ code reusability knowledge for application based software.
CO5: Define the modules to handle large volume of data by applying management techniques

Part A **10 x 1 = 10**
Choose the Correct Answer

1. Identify the term that represents the smallest individual units in a program. CO1K1
   a. tokens b. variable
   c. keyword d. constant

2. Match the following , which term refers to the names of variables, functions, arrays, classes, etc? CO1K1
   a. keyword b. token
   c. Identifiers d. variable

3. Select from the following, which is an extension to the structure data type. A class can have both variables and functions as members? CO2K2
   a. class b. function
   c. method d. procedure

4. Identify the function that is expanded in line when it is invoked. CO2K2
   a. outline b. inline
   c. main d. sub

5. Choose the best answer for C++ provides a special member function called _____, which enables an object to initialize itself when it is created. CO3K3
   a. destructor b. method
   c. procedure d. constructor

6. Identify the term: operator overloading is one of the important features of the C++ language. It is called _____ polymorphism.. CO3K2
   a. runtime b. execution time
   c. compile time d. process time

7. Identify the mechanism of deriving a new class from an old class, called _____. CO4K2
   a. inheritance b. polymorphism
   c. class d. object

8. Which is a derived data type that refers to another data variable by storing the variable's memory address rather than data? CO4K3
   a. Function b. Pointer
   c. Constructor d. Destructor

9. Collection of related data stored in a particular area on the disk is _____. CO5K2
   a. record b. data
   c. variable d. file

10. Runtime anomalies or unusual conditions that a program may encounter while executing is _____. CO5K3
   a. error b. exceptions
   c. logical d. syntax

Part B — 5 x 6 = 30

Answer ALL questions

Each answer should not exceed 400 words or two pages

11.a. Describe about object-oriented programming. How is it different from the procedure oriented programming? CO1K2

(or)

11.b. Explain the major parts of a C++ program. CO1K2

12.a. Explain about when will we make a function inline. Why? CO2K3

(or)

12.b. Write a program to read a matrix of size mxn from the keyboard and display the same on the screen using functions. CO2K3

13.a. State whether the following statements are TRUE or FALSE. CO3K1

(a) Constructors, like other member functions, can be declared anywhere in the class.
(b) Constructors do not return any values.
(c) A constructor that accepts no parameter is known as the default constructor.
(d) A class should have at least one constructor.
(e) Destructors never take any argument.

(or)

13.b. Describe about when is a friend function compulsory. Give an example. CO3K1

14.a. Explain the following : CO4K3

We know that a private member of a base class is not inheritable. Is it anyway possible for the objects of a derived class to access the private members of the base class? If yes, how?Remember, the base class cannot be modified.

(or)

14.b. Demonstrate which of the following statements are TRUE or FALSE CO4K3

(a) Virtual functions are used to create pointers to base classes.
(b) Virtual functions allow us to use the same junction call to invoke member functions of Objectsof different classes.
(c) A pointer to a base class cannot be made to point to objects of derived class.
(d) this pointer points to the object that is currently used to invoke a function.
(e) this pointer can be used like any other pointer to access the members of the object it points to.

15.a. Discuss the difference between opening a file with a constructor function and opening a file with open () function? When is one method preferred over the other? CO5K2

(or)

15.b. Describe about exception handling mechanism with example. CO5K2

Part C — 5 x 12 = 60

Answer ALL questions

Each answer should not exceed 800 words or four pages

16.a. Write a program to read two numbers from the keyboard and display the larger value on the screen. CO1K3

(or)

16.b. Write a program for the following : CO1K3

An election is contested by five candidates. The candidates are numbered 1 to 5 and the voting is done by marking the candidate number on the ballot paper. Write a program to read the ballots and count the votes cast for each candidate using an array variable count. In ease, a number read is outside the range 1 to 5, the ballot should he considered as 'spoilt ballot', and the program, should also count the number of spoilt ballots.

17.a. Write a main program to test the following . CO2K3

Define a class to represent a bank account. Include the following members:
Data members

1. Name of the depositor
2. Account number
3. Type of account
4. Balance amount in the account.

Member functions

1. To assign initial values
2. To deposit an amount
3. To withdraw an amount after checking the balance
4. To display name and balance

(or)

17.b. Write the mechanism of accessing data members and member functions in the following cases: CO2K3

(i) Inside the main program.
(ii) Inside a member function of the same class.
(iii) Inside a member function of another class.

18.a. Write a program for the following . CO3K3

Create a class FLOAT that contains one float data member. Overload all the four arithmetic operators so that they operate on the objects of FLOAT.

(or)

18.b. Show the errors in the following program. CO3K3

```
#include <iostream.h>
class Room
{
int width;
int height;
public:
void Room()
{
width=12;
height=8;
}
Room(Room& r)
{
width =r.width;
height=r.height;
copyConsCount++;
}
void discopyConsCount()
{
cout<<copyConsCount;
}
};
int Room::copyConsCount = 0;
void main()
{
Room objRooml;
Room objroom2(objRoom1);
Room objRoom3 = objRoom1;
Room objRoom4;
objRoom4 = objRoom3;
objRoom4.dicopyConsCount();
}
```

19.a. Determine about how an object of a class that contains objects of other classes created? CO4K3

(or)

19.b. Apply your knowledge and write the program for the following task. CO4K3

Create a base class called shape. Use this class to store two double type values that could be used to compute the area of figures. Derive two specific classes called triangle and rectangle from the base shape. Add to the base class, a member function get_data() to initialize base class data members and another member function display_area() to compute and display the area of figures. Make display_area() as a virtual function and redefine this function in the derived classes to suit their requirements.

20.a. Illustrate and explain about what is a file mode? Describe the various file mode options available. CO5K3

(or)

20.b. Explain the basic concept of exception handling with example program. CO5K3

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