Government Polytechnic, Ahmedabad

Computer Engineering Department

Sub: Programming in C++ (3330702)

Question Bank

Unit 1:

1. Describe program structure of C++.
2. Define following terms.
   a) Data Encapsulation b) Polymorphism.
3. Write basic difference between Procedural Oriented Programming (POP) and Object Oriented Programming (OOP).
4. Define Class, object and Constant with example.
5. Write down applications of Object Oriented Programming.
6. Describe ternary operator (? :) in C++.
7. Explain scope resolution operator with suitable example.
8. What is reference variable? How it is difference from Pointer Variable. Explain it with example.
9. Explain memory allocation of objects in C++ with example.
10. Explain classification of data types available in C++.
11. Explain user defined datatypes of C++.
12. Explain derived datatypes of C++.
13. Explain Arithmetic, Logical, relational operators of C++ with example.
14. Explain increment/decrement, assignment, bitwise operators with example.
15. Explain type cast operator with example.
16. Write program in C++ to find out addition, subtraction, multiplication, division operations with scope resolution operator of two integer numbers.
17. Define dynamic binding and message passing? How it is useful in OOP?
18. Write the important features of Procedure Oriented Programming and Object Oriented Programming
19. Write a program in C++ to print message “hello world” with scope resolution operator.
20. What are literals? Give one example of integer literal, character literal, float literal, Boolean literal.
21. Write the output of following.

```
main()
{
int i;
for(i=1;i<=5;i++);
cout<<i;
}
```

Unit 2:

1. Explain function prototyping with example.
2. Write a program to demonstrate use of default arguments in C++.
3. What is inline function? How it works compare to other functions? Give the syntax and example of inline function.
4. What is friend function? Explain its pros and cons with example.
5. Explain call by value and call by reference with suitable example.
6. Explain Function Overloading with suitable example.
7. What is mean by dynamic initialization of variable Explain it with example.
8. Write program in C++ to calculate simple interest with the help of default arguments.
9. Write program in C++ for addition operation on numbers, strings with the help of function overloading.
10. Write program in C++ to find out sum of all the digits of given no by using call by value.
11. Create a class Distance having data members feet and inches. Write a program to add to distances using object as function arguments.
12. Explain the difference between "structure" of C and "class" in C++.
13. List access specifier used in C++. Explain any one of them.
14. Write program in C++ to overload unary minus operator with the help of operator overloading.
15. What is array of object?
16. Explain the concept of passing object as argument.
17. Describe the mechanism of accessing data members and data functions in the following cases:
    a) Inside the main() function
    b) Inside the member function of the same class.
18. Create a class Time that displays time in hour and minute form. Create a method totalTime() which takes two Time objects as an argument and returns a new object of Time displaying total of both Time objects.
19. Explain static data members and static function with suitable example.
20. Define a class 'employee' to store records of 100 employees of company X including following members:
    Data member: (1) Emp_id (2) Emp_name (3) Emp_dept
    Member Functions: (1)getdata() (2)displaydata()
21. Explain Private Member function.
22. Define a class Emp which include following data member and member Function.
    Data Member : 1) Emp_no 2) Name of Employee 3) Name of department 4) Salary
    Member Function :
    1) To read a Employee Number, Name, Department and salary.
    2) To Display Employee Number, Name, Department and salary
23. Write a program to count total no of object created.
24. Difference between Call by Reference and Return by Reference.
25. Write a program in C++ to calculate area of circle with default arguments.
26. Write a simple C++ program that show the use arrays within a class.

27. What is type casting? Explain How to Convert primitive data type to User Define Data type.
28. Define a class to represent a student record which include following data member and member function.
    Data Member : (1) Enrollment No (2) Name of Student (3) Name of Course (4) Marks of 3 Subject
    Member Function : (1) To read a student record (2) To find total Marks. (3) To display Result.
29. Write a Program to find Minimum from Two values by passing object as argument.Passing input from keyboard.
    Consider Name of Class is Temp. Data Member : int x
    Member function : Get(int n)
    Max(Temp t)

Unit 3:

1. Can constructor return a value? Justify your answer.
2. Demonstrate use of parameterized constructor with suitable example.
3. Demonstrate use of copy constructor with suitable example.
4. What are constructors and destructors? Explain characteristics of constructors and destructors with suitable program of both.
5. Write program in C++ to create clone of the object using copy constructor.
6. Write program in C++ to use multiple constructor.
7. True and False:
    a) Friend functions have access to only public members of a class.
    b) A class should have at least one constructor.
8. Distinguish between statement a and b given below:
    Student s1;
    a) Student s2=s1; b) Student s2(s1);
9. What is Constructor ? List out types of constructor.
10. Write program in C++ using constructor to calculate the volume of box.
11. Write program in C++ to use multiple constructor.

Unit 4:

1. What is inheritance? List different types of inheritances with suitable diagram.
2. Explain ways to define derived class with suitable example.
3. Explain public, private and protected access specifier with example.
4. Demonstrate use of Multilevel Inheritance with suitable example.
5. Demonstrate use of Multiple Inheritance with suitable example
6. Write a C++ program to use constructor in derived class.
7. Write a program using multilevel inheritance showing a protected member inherited.
8. What is abstract class? How it is implemented in C++.
9. What is Virtual class and when does a class is declared virtual? explain with example.
10. Write a program with following definitions and explain how the properties of class B and class C differs
    a) Class B:Public A{//} Class C:Private A{//}

11. Write a program to calculate the area and perimeter of a rectangle using the concept of inheritance.
12. What is derived class ? Write the syntax of declaring a derived class . Explain different visibility modes.
13. Write a short note on data abstraction.
14. What is protected? Explain with example.

Unit 5:

1. What is 'this' pointer. Explain its utility.
2. What are virtual functions? Demonstrate it using a simple program.
3. Write difference between static binding and dynamic binding.
4. Write a C++ program to demonstrate the use of pure virtual function with the use of base and derived class.
5. What is pointer ? How to declare a pointer variable and print its value.Explain following two statements .
   int n=10;
   int *iptr=&n
6. Writ a simple program that prints the address of a variable and its value.
7. What is virtual functions? Write a program which Illustrate pointer to virtual function
8. Explain pointer to object with Suitable example

Unit 6:

1. Explain formatted outputs using width() and precision() with suitable example.
2. Explain formatted outputs using fill() and setf() with suitable example.
3. Explain input and output streams in C++.
4. Illustrate with example working of endl, setw and setfill manipulator.
5. Explain C++ Stream class hierarchy.
6. Explain the functions get() , put() , getline() with example.
7. What is manipulator? Explain with example.