EDUCATALYSTS

C++ Sample Paper

Scheme – I

Sample Question Paper

Program Name	: **Computer Engineering Program Group**	
Program Code	: **CO/CM/IF/CW**	
Semester	: **Third**	**22316**
Course Title	: **Object Oriented Programming using C++**	
Max. Marks	: **70**	**Time: 3 Hrs.**

Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order

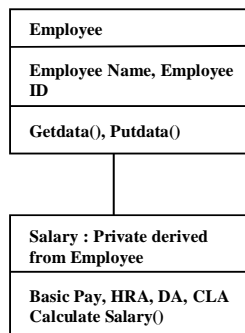**Q.1 Attempt any Five of the following**   **10 Marks**
    A. Explain with suitable example, syntax of for loop in C++.
    B. Explain concept of abstract class.
    C. State the use of scope resolution operator and its use in C++.
    D. State use of new operator.
    E. List and explain use of any four file mode parameters
    F. Explain use of friend function with the help of suitable example.
    G. Write a C++ program to swap two numbers using pointer

Q.2 Attempt any Three of the following   **12 Marks**
    A. Write a C++ program that replaces the string "Computer" in the String "Diploma in Computer Engineering" with string "Information Technology".
    B.

Employee
Employee Name, Employee ID
Getdata(), Putdata()

Salary : Private derived from Employee
Basic Pay, HRA, DA, CLA Calculate Salary()

Define classes to appropriately represent class hierarchy as shown in above figure. Use constructors for both classes and display Salary for a particular employee.

    C. Define a class named 'Train' representing following members:
        Data members :-
          - Train Number

- Train Name
- Source
- Destination
- Journey Date
- Capacity

Member functions:
- Initialise members
- Input Train data
- Display data

Write a C++ program to test the train class.

D. State any four points of differentiation between function overloading and function overriding.

**Q.3 Attempt any Three of the following** 12 Marks

A. Write a C++ program to calculate sum of distance and display the results using friend function.

B. Write a program to count no of occurrence of particular character in text file

C. Answer following :
   a. Define concept of virtual base class.
   b. Give reason for assigning protected visibility specifier to a class member.

D. State rules of operator overloading.

Q.4 Attempt any Three of the following 12 Marks

A.
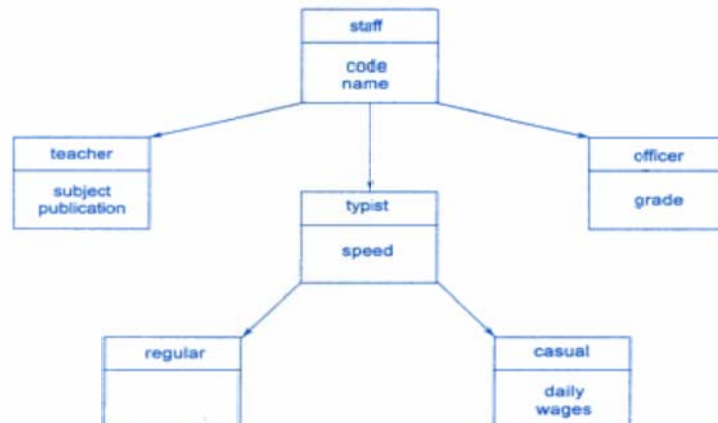
An educational institution wishes to maintain a data of its employees. The hierarchical relationships of related classes are as shown in figure. Define all the classes to represent above hierarchy and define functions to retrieve individual information as and when required.

B. Write a C++ program that displays a decimal number in reverse order.(Ex. If number is 34521 , output expected is 12543)

C. Write a C++ program to add two complex numbers overloading "+"operator

D. Write a program to copy contents of ABC.txt to XYZ.txt

E. Write a C++ program to display number of objects created using static member.

Q.5 Attempt any Two of the following   **12 Marks**

A.   1.   State any four points of differentiation between compile time polymorphism and run time polymorphism

B.   i)   Write a program that will create data file containing the list of telephone numbers as:

John 34567

Hari 56788

……

Use a class object to store each set of data.

C. Define a class named 'Bank Account' to represent following members:

     Data members :-
- Account Number
- Name of Depositor
- Account Type
- Balance Amount

     Member functions:
- Initialize members
- Deposit Amount
- Withdraw Amount
- Display Balance

     Write a C++ program to test the Bank Account class for 10 customers.

Q.6 Attempt any Two of the following   **12 Marks**

A. Give syntax of and explain various functions related to **ifstream** and **ofstream** classes: seekp(), getline(),hide(),tail()

B. Fix the compilation errors and find the output of following program

```
#include<iostream.h>

class Test
{
private:
int x;
public:
Test(int x = 0) { this->x = x; }
void change(Test *t) { this = t; }
void print() { cout << "x = " << x << endl; }
};
void main()
{
Test obj(5);
Test *ptr = new Test (10);
obj.change(ptr);
obj.print();
}
```

C. A program uses a function named convert() in addition to its main function. The function main() declares the variable **x** within its body and the function convert declares two variables **y** and **z** within its body, **z** is made static. A fourth variable **m** is declared ahead(ie at top) of both the functions. State the visibility and lifetime of each of these variables.

Scheme – I

Sample Test Paper – I

(40% of 5-Unit curriculum and 50% of 6-Unit curriculum)

Program Name	**: Computer Engineering Program Group**
Program Code	**: CO/CM/IF/CW**
Semester	**: Third**
Course Title	**: Object Oriented Programming using C++**
Max. Marks	**: 20**

22316

Time: 1 Hour

Instructions:

(1) All questions are compulsory.

(2) Illustrate your answers with sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data if necessary.

(5) Preferably, write the answers in sequential order

Q.1 Attempt any FOUR of the following   **8 Marks**

   a) Differentiate between do..while and while loops on the basis of syntax.

   b) Explain syntax of any two String functions.

   c) Explain working of insertion and extraction operators in C++ with the help of suitable example.

   d) State the use of static data member of a class.

   e) Describe various places at which member functions can defined using suitable example.

   f) Write a C++ program that displays first 10 odd numbers.

Q.2 Attempt any THREE of the following   **12 Marks**

   a) Define a structure that represents Fruit with properties fruit name, fruit type, fruit color. Write a program that accepts data of four fruits and displays the results.

   b) Write a C++ program to calculate root of quadratic equations by initializing the object using default constructor.

   c) Explain use of friend function with the help of suitable example.

   d) Explain different access specifiers used in C++.

Scheme – I

Sample Test Paper – II

(60% of 5-Unit curriculum and 50% of 6-Unit curriculum)

Program Name	**: Computer Engineering Program Group**	
Program Code	**: CO/CM/IF/CW**	**22316**
Semester	**: Third**	
Course Title	**: Object Oriented Programming using C++**	
Max. Marks	**: 20**	**Time: 1 Hour**

Instructions:

(1) All questions are compulsory.

(2) Illustrate your answers with sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data if necessary.

(5) Preferably, write the answers in sequential order

Q.1 Attempt any FOUR of the following   **8 Marks**

    a) State any two forms of inheritance.Give an example of each.

    b) Define concept of virtual base class.

    c) State any one use of this pointer with suitable example.

    d) State rules for virtual function.

    e) List and explain use of any four file mode parameters

    f) Draw hierarchy of stream classes for file operations.

Q.2 Attempt any THREE of the following   **12 Marks**

    a. i) Demonstrate hybrid inheritance with the help of suitable example.

       ii)State the reason for making a class virtual with the help of example

b.   Correct the syntactical and logical errors in the following and explain program:

```
class test
{
   Private:
        int m;
   public:
        void getdata()
        {
                cout<<"Enter No:";
                cin>> m;
        }
        void display()
        {
                cout<<m;
        }
};

main()
{
        test T;
        T->getdata();
        T->display();
        test *p;
        p=new test;
        p.getdata();
        (*p).display();
}
```

c. Write a C++ program to overload area() function to calculate area of shapes like triangle ,square, circle.

d. Write a program to copy contents of ABC.txt to XYZ.txt