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44 (4) BCA-HC-4036

2023

**OBJECT ORIENTED PROGRAMMING  
IN C++**

Paper : BCA-HC-4036

Full Marks : 60

Time : Three hours

**The figures in the margin indicate  
full marks for the questions.**

1. Define the following terms with examples :

3×4=12

~~(1)~~ Encapsulation

~~(2)~~ Polymorphism

~~(3)~~ Inline Function

~~(4)~~ Abstract Class

Contd.



2. State whether the following statements are True **or** False :  $1 \times 8 = 8$

- ~~(a)~~ In OOP emphasis is on data rather than on procedure.  $\checkmark$
- ~~(b)~~ From one base class only one derived class can be defined.  $\checkmark$
- ~~(c)~~ Destructor can be overloaded.  $\checkmark$
- ~~(d)~~ Pure virtual function has no definition.  $\checkmark$
- ~~(e)~~ Arrays cannot be passed as function arguments.  $\checkmark$   $\text{F}$
- ~~(f)~~ A constructor can have different name as that of the class.  $\checkmark$   $\text{F}$
- ~~(g)~~ It is mandatory for every class to have a data member.  $\checkmark$   $\text{T}$
- ~~(h)~~ In OOP data can be kept hidden so that it cannot be accessed by external function.  $\checkmark$

3. Answer the following questions : **(any five)**  $5 \times 5 = 25$

- ~~(a)~~ Briefly explain the concept of polymorphism with an example.



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(b) What is Inheritance? Explain various forms of Inheritance with suitable example.

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(c) What are the main differences between object oriented and procedure oriented programming?

(d) What is a virtual function? Using your own example code explain how run-time polymorphism is achieved using virtual function in C++.

(e) Explain the role of seekg(), seekp(), tellg(), tellp() function in the process of random access in a file.

(f) Write a C++ program to demonstrate the use of try, catch, throw and nested try.

(g) Write the difference between multilevel and multiple inheritance.

4. Write a C++ program to create a class "Employee" which stores information such as Emp\_id, Emp\_name, and Emp\_age. Write member functions for creating and displaying the values of various class and objects.

5



OR

Write a program in C++ to show the use of copy constructor.

5. What is function? How can you define member function inside and outside class? Write a program in C++ to illustrate the concept of friend function.  $1+3+6=10$

OR

Is there any difference between private and protected inheritance? Explain with suitable examples. 10

class A {  
    A obj;  
    void show();  
};

int main()  
{  
    A obj;  
    obj.show();  
}

cout << "A is a class";

amir

class A {  
public:  
    void show();  
};

int main()  
{  
    A obj;  
    obj.show();  
}