

**B.Tech 4th Semester Exam., 2015**

**OBJECT-ORIENTED PROGRAMMING**

Time : 3 hours

Full Marks : 70

**Instructions :**

- (i) All questions carry equal marks.
- (ii) There are **NINE** questions in this paper.
- (iii) Attempt **FIVE** questions in all.
- (iv) Question No. 1 is compulsory.

**1. Choose the correct option (any seven) :**

(a) Find out the error in following block of code :

```
if (x = 100)
cout<<"x is 100";
```

- (i) 100 should be enclosed in quotations
- (ii) There is no semicolon at end of first line
- (iii) Equals to operator mistake
- (iv) Variable x should not be inside quotation

(b) Which of the following is not a jump statement in C++?

- (i) Break
- (ii) Goto
- (iii) Exit
- (iv) Switch

(c) Consider the following statements :

```
int *p ;
int i, k ;
i=142 ;
k=i ;
p=&i ;
```

Which of the following statements changes the value of i to 143?

- (i) k=143;
- (ii) \*k=143;
- (iii) p=143;
- (iv) \*p=143;

(d) Which of the following is false?

- (i) Variable has scope and visibility
- (ii) Variables having scope may not be visible

Variables having visibility may not have scope

None of the above

- (e) A class cannot be
- (i) virtual
  - (ii) generic
  - (iii) inline
  - (iv) friend
- (f) Which of the following is/are false?
- (i) Inheritance is deriving new class from existing class
  - (ii) In an inheritance, all data and function members of base class are derived by derived class
  - (iii) We can specify which data and function members of base class will be inherited by derived class
  - (iv) We can add new functions to derived class without recompiling the base class
- (g) What is true about inline functions?
- (i) It's a compulsion on the compiler to make function inline
  - (ii) It's a request to the compiler to make the function inline
  - (iii) It's the indication to the compiler that the function is recursive
  - (iv) It's the indication to the compiler that the function is member function

- (h) The statement `char s = 'A'` will internally assign value to s is
- (i) 0
  - (ii) 90
  - (iii) 65
  - (iv) 127
- (i) If p is a pointer, then `p++` means
- (i) increment the value of p
  - (ii) increment the pointer p
  - (iii) increment the address of the variable to which p is pointing
  - (iv) increment the value of the variable to which p is pointing
- (j) Which of the following is not the member of class?
- (i) Static function
  - (ii) Friend function
  - (iii) Constant function
  - (iv) Virtual function

2. (a) Explain template and its type with an example.

(b) Write a program using function template to find the cube of a given integer, float and double number.

3. (a) What is the output of the following code?

```
#include<iostream.h>
class A {
public :
void f()
{
    std::cout<<"A::f"<<std::endl;
}
virtual void g()
{
    std::cout<<"A::g"<<std::endl;
}
};
class B :
public A
{
public :
void f()
{
    std::cout<< "B::f"<<std::endl;
}
virtual
```

```
{
    std::cout<< "B::g"<<std::endl;
} };
int main (int argc, char** argv)
{
    A a; B b;
    A* aPtr=&a;
    A* bPtr=&b;
    aPtr->f();
    aPtr->g();
    bPtr->f();
    bPtr->g();
    return 0;
}
```

Is there anything to be noticed? Explain it.

(b) What is virtual destructor? How virtual functions call up is maintained?

4. Explain the following :

- (a) Conversion from class to basic type
- (b) Function prototyping
- (c) Overload resolution

5. (a) Write the expressions to represent the following :

(i) p is a function whose argument is a pointer to an array of characters and which returns a pointer to an integer.

(ii) p is a function whose argument is a pointer to character and which returns a pointer to an array of ten integers.

(b) What is encapsulation? What are its advantages? How can encapsulation be enforced in C++?

6. Give the difference between—

(a) a pointer and a reference;

(b) new and malloc;

(c) object and class.

7. (a) In which situation catch blocks are used? Also give types of catch handler in C++.

(b) Write a program to show the concept of rethrowing an exception.

8. (a) Explain nested switch ()case statement with an example and also show its output.

(b) What are iteration statements? Write a program in C++ for iteration statements (any one) and also show its output.

9. (a) What is function overloading? How it differs from operator overloading?

(b) What are the differences between a C++ struct and C++ class?