



ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE - 2008
OBJECT ORIENTED PROGRAMMING WITH C++
SEMESTER - 2

Time : 3 Hours]

[Full Marks : 70

GROUP - A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any ten of the following : 10 × 1 = 10

i) Constructors can be

a) virtual

b) return type

c) inherited

d) generated by default if not provided by the programmer.

ii) Which operator of the following cannot be overloaded ?

a) →

b) ?:

c) []

d) delete.

iii) Private member of the super-class

a) is both extended as well as accessed inside sub-class

b) is extended but cannot be accessed inside sub-class

c) is not extended but can be accessed inside sub-class

d) is not both extended as well as accessed inside sub-class.

II-222522 (5)



- iv) The difference between new operator and malloc() is that
- a) more memory space is allocated in case of new operator
 - b) malloc() allocates memory space dynamically
 - c) new can be overloaded
 - d) malloc() can allocate memory space for any type of data.

- v) What will be the output of the following piece of code ?

```
#include<iostream.h>
```

```
#define a 2;
```

```
int main()
```

```
{
```

```
int j = 3;
```

```
int i = a+j++;
```

```
cout<<i;
```

```
return 0;
```

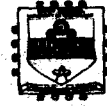
```
}
```

- a) Compilation error
- b) 6
- c) 5
- d) 4.

- vi) The major goal of inheritance in C++ is to

- a) to facilitate the conversion of data types
- b) to help modular programming
- c) to facilitate the reusability of code
- d) to hide the details of base classes.

II-222522 (5)



vii) Which of the following is/are overloading the function shown below ?

```
int sum ( int x, int y ) { // }
```

- a) int sum (int x, int y, int z) { }
- b) int sum (float x, float y) { }
- c) int sum (int x, int y, float z) { }
- d) all of these.

viii) The function show () is a member of the class A & obj is an object of A & ptr is a pointer to A. Which of the following are valid access statements ?

- a) obj.show();
- b) ptr→show();
- c) (*ptr).show();
- d) all of these.

ix) Consider the declarations :

char a;

const char aa='h';

char *na;

const char *naa;

Which of the following statements is/are illegal ?

- a) Only I and II
- b) Only II and III
- c) Only I and III
- d) All are illegal.

II-222522 (5)



x) class A : public B, public C

is an example of what kind of inheritance ?

- a) single
- b) multiple
- c) multilevel
- d) hierarchical.

xi) A class has one data member and one method member. This class is used in a program that declares 10 objects of this class. The numbers of addresses for data member and method member are respectively

- a) 10 and 1
- b) 10 and 10
- c) 0 and 10
- d) none of these.

xii) Dynamic binding is necessary when we refer to derived class object with

- a) global pointer
- b) derived class pointer
- c) non-pointer variable
- d) base class pointer.

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following.

3 × 5 = 15

2. What do you mean by exception ? Write down the purposes of the following keywords :

- i) try
- ii) catch
- iii) throw.

2 + 3

3. Why can constructors not be virtual ? Can destructor be virtual ? Give reasons and explain your answer.

5

4. What do you mean by a reference variable ? Is there any difference between reference variable and pointer ? Explain with example.

3 + 2

5. Write down the differences between object-oriented programming languages and earlier (non-object-oriented) programming languages.

5

6. What are friend functions ? What are their implications on information hiding.

5

II-222522 (5)



GROUP - C

(Long Answer Type Questions)

Answer any *three* questions.

3 × 15 = 45

- 7. a) What is stream ?
- b) What is "Ellipsis" ?
- c) Write a C++ program to write into a file named 'test.txt' the text 'Department of MCA 1st year, 2nd Semester" and without closing the file, print the content of 'test.txt' on the console.
- d) Illustrate the use of nested try block. Is it necessary that number of catch blocks should be equal to the number of try blocks ? Justify your answer with proper example. 2 + 2 + 6 + (3 + 2)

- 8. What is operator overloading ? Why is it necessary to overload an operator ? Create a class Complex that will contain complex numbers. Use operator overloading to create addition, subtraction and multiplication operators which will operate on Complex. 2 + 3 + 10

- 9. What do you mean by virtual base class ? What do you mean by polymorphism ? How is the polymorphism achieved at run time in C++ ? What is late binding ? Write a program to concatenate two strings of two different objects using operator overloading with constructor. 2 + 2 + 4 + 2 + 5

- 10. How can we distinguish between prefix and postfix nature while overloading the unary ++ operator ? Write a program to overload the new operator. When do we use the protected visibility specifier to a class member ? What are the advantages of using 'new' operator over malloc() ? What is runtime polymorphism ? 3 + 5 + 3 + 2 + 2

- 11. What is the specialty of a template function ? Give examples. Design template class to implement a queue. What is an Exception ? How are these handled in C++ ? 4 + 6 + 2 + 3

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END

II-222522 (5)