Atal Bihari Vajpayee
Indian Institute of Information Technology and Management (ABV-IIITM), Gwalior

(An Institute of National Importance, Ministry of Education, Government of India)

MINOR THEORY EXAMINATION-2024

Course Code: CS/IT-103
Course Name: Object Oriented Programming
Program & Sem: B.Tech. (CSE/MSC/EEE), 2nd Semester

Date: 01-03-2024 (Fri)
Time: 10:00-12:00 PM
Max Marks: 30

Instructions:

(i) Read all questions carefully and answer accordingly.
(ii) This Question paper contains fifteen questions.

Part A

Answer all the Questions.

Each question carries one mark. **(10 Questions x 1 Mark = 10 Marks)**

Q.1. Which of the following statements of a program is not valid? **(1 Mark)**

(a) class X{ }; X s[5];
(b) class X{ }; s;
(c) class X{ }; X s;
(d) class X{ } X s[ ];

Q. 2. Identify wrong C++ keyword below **(1 Mark)**

(a) auto, double, int, struct
(b) this, that, public, private
(c) inline, static, new, delete
(d) break, else, long, switch

Q. 3 What is "cout" in a C++ program is **(1 Mark)**

(a) Object (b) Class (c) Operator (d) None

Q. 4 What is the output of this program? **(1 Mark)**

```
#include<iostream>
int main()
{ int a=4, b, c;
b = --a; c = a--;
std::cout<<a<<"\t" <<b<<"\t" <<c;
return 0;}
```

(a) 3 2 2 (b) 2 3 2 (c) 2 3 3 (d) 3 2 2

Q. 5. Which of the following operator is not a member dereferencing operator? **(1 Mark)**

(a) :: (b) * (c) ->* (d) ::*

Q. 6. The dot operator connects the following two entities (reading from left to right): **(1 Mark)**

(a) Class member and object
(b) Class object and member
(c) Class object and class
(d) Class and member of class

P.T.O

(1 Mark)

Q. 7. The inline function expansion may not work

(a) For function containing Static variables
(b) For functions containing jump instructions
(c) Only option (a)
(d) Both (a) and (b) **(1 Mark)**

Q. 8. Identify the correct statement

(a) Structures by default hide every member whereas classes do not
(b) Structures cannot have private members whereas classes can have private members
(c) In structures, by default members are public whereas in classes, by default members are private
(d) Both (a) and (b) **(1 Mark)**

Q. 9. C++ is a

(a) Procedural
(b) Object oriented
(c) Neither (a) nor (b)
(d) Both (a) and (b) **(1 Mark)**

Q. 10. Which statement is incorrect about member function?

(a) Member functions can be defined outside the class definition
(b) Member functions can be defined inside the class definition
(c) Member functions cannot be nested
(d) Member functions defined outside can be made inline

Part B:

Answer all the Questions.

Each question carries four marks. **(5Q x 4M = 20M)**

Q. 11. What will be the output of the following programs? **(4 Marks)**

(a)

```
#include <iostream>
using namespace std;
class A
{
public:
        static int a;
        void increment( )
        {
        a++;
        }
        int get( )
        {
        return a;
        }
};
int A :: a = 10;
int main( )
{
        A obj1, obj2, obj3;
        obj1.increment();
        obj2.increment();
        obj3.increment();
        cout <<obj3.get()<<obj2.get()<<obj1.get()<<endl;
        return 0;}
```

(b)

```
#include <iostream>
using namespace std;
class A
{
        int a;
        void modify_a (int x) {a=x;}
```

```
};
int main ()
{
        A a;
        a.modify_a(10);
        return 0;
}
```

(c)
```
#include <iostream>
using namespace std;
int main()
{
        char inChar = 'A' ;
        switch (inChar) {
        case 'A' : cout<<"OOPs";
        case 'B' :
        case 'C' : cout<<"Robert Lafore";
        case 'D' :
        case 'E' :
        default : cout<<"No Choice"; }
        return 0;}
```

(d)
```
#include <iostream>
int main()
{
        int m = 10, n, n1;
        n = ++m;
        n1 = m++;
        n--;
        --n1;
        n-=n1;
        std::cout<<n;
        return 0;
}
```

Q. 12. (a) What is a friend's function and how it differs from member function. (1 Mark)
(b) Write a C++ program to create a class Student with private members' name and marks. Implement a friend function named calculateGrade() outside the class that takes a student object as a parameter and calculates and prints the grade based on marks. (3 Marks)

Q. 13. (a) What is the significance of using "using namespace std;" in C++ program. (2 Marks)
(b) Write a C++ program to print pascals triangle (4 rows). (2 Marks)

Q. 14. (a) Write the Characteristics/features of OOPS. (1 Mark)
(b) Write a C++ program to print factorial of a number using recursion. (3 Marks)

Q. 15. Define a class quadratic, with private data members as the coefficients of the quadratic equation, and getdata(), and roots() as the public member functions. Implement the C++ program for the same. (4 marks)

"no /n"