

INSTITUTE OF ENGINEERING & MANAGEMENT
DEPARTMENT OF INFORMATION TECHNOLOGY
ASSIGNMENTS
PROGRAMMING PRACTICES USING C++ (IT-504F)

1. Write a user defined function in C++ to read the content from a text file MYbook.txt, count and display the number of blank spaces present in it.
2. Write a function in C++ to count the number of alphabets present in a text file "NOTES.TXT".
3. Write a function in C++ to count and display the number of words starting with a vowel present in a given text file "ABC.TXT".
4. Write a function which reads an already existing file "text1.txt" and writes digits (0-9) in to a new text file "DIGIT.TXT" and non digit files into NONDIG.TXT.
5. Write a function in C++ to count the number of lines present in a text file "STORY.TXT".
6. Assuming that a text file named TEXT1.TXT already contains some text written into it. Write a function named vowelwords(), that reads the file TEXT1.TXT and creates a new file named TEXT2.TXT , which shall contain only those words from the file TEXT1.TXT which don't start with an uppercase vowel.
7. Write a program that reads a text file and print it on a printer.
8. Write a program that displays the size of a text file in bytes.
9. Write a function in C++ to print the count of the word is as an independent word in a text file DIALOGUE.TXT. For example, if the content of the file is "This is his book. Is this book good?"
10. Write an interactive C++ program to read a text file and display the following :
(i) Frequency table of all the alphabetic characters
(ii) Number of numeric characters present in the file.

11. Consider the following class declaration:

```
class student{
    int addno; char name[90];
    float totalmarks;
    public :
    void getinfo() {
        cin>>addno>>name>>totalmarks ;
    }
    void showinfo () {
        cout<< addno<<name<<totalmarks;
    }
    float rettotmarks () {
        return totalmarks;
```

```
    }  
};
```

Give function definition to do the following:

(i) Write the objects of student to a binary file.

(ii) Read the objects of student from a binary file and display the entire object on the screen where total marks are between 456 and 498.

What will be the output of the following codes:

1. What value will be printed for data.c ?

```
#include<stdio.h>  
#include <string.h>  
int main() {  
    union Data {  
        int i;  
        unsigned char c;  
    } data;  
    data.c ='C';  
    data.i = 89;  
    printf( "%c\n", data.c);  
    return 0;  
}
```

2. What is the output of the following program?

```
#include <stdio.h>  
void foo( int[ ] );  
int main() {  
    int myarray[4] = { 1, 2, 3, 0};  
    foo(myarray);  
    printf("%d ", myarray[0]);  
}  
void foo(int p[4]){  
    int k = 34;  
    p = &k;  
    printf("%d ", p[0]);  
}
```

3. What is the output of the following program?

```
#include <stdio.h>  
#define func(x, y) x / y + x  
int main() {  
    int i = -6, j = 3;  
    printf("%d\n",func(i + j, 3));  
    return 0;  
}
```

4. What will be the output of the following program ?

```
#include <stdio.h>  
int sum(int a, int b, int c) {
```

```

    return a + b + c / 2;
}
void main() {
    int (*function_pointer)(int, int, int);
    function_pointer = sum;
    printf("%d", function_pointer(2, 3, 4));
    return ;
}

```

5. What will be the output of the following program?

```

#include<iostream>
#include<string.h>
#include<stack>
using namespace std;

int main() {
    char str[19]= "Programming";
    stack<char> s;
    for(int i = 0; i < strlen(str); i++)
        s.push(str[i]);
    for(int i = 0; i < strlen(str) - 1; i++) {
        cout << s.top();
        s.pop();
    }
    return 0;
}

```

6. Identify the output of the following code.

```

#include<iostream>
using namespace std;
int main() {
    typedef struct Complex {
        double re;
        double im;
    } Complex;
    const Complex c = {2,4} ;
    c.re = 5.9;
    cout << c.re;
    return 0;
}

```

7. What will be the output of the following code ?

```

#include <iostream>
using namespace std;
double Ref_const(const double &param) {
    return (param * 3.14);
}
int main() {
    double x = 8, y;
    y = Ref_const(x);
}

```

```

    cout << x << " " << y;
    return 0;
}

```

8. What will be the output of the following code ?

```

#include <iostream>
using namespace std;
void func(int n1 = 10, int n2) {
    cout <<n1 << " " << n2;
}
int main() {
    func(1);
    func(3, 4);
    return 0;
}

```

9. What will be the output of the following code?

```

#include <iostream>
using namespace std;
int Add(int a, int b) { return (a + b); }
double Add(double c) {
    return (c + 1);
}
int main() {
    int x = 1, y = 2, z;
    z = Add(x, y);
    cout << z;
    double s = 4.5, u;
    u = Add(s);
    cout << " " << u << endl;
    return 0;
}

```

10. What will be the output of the following code?

```

#include<iostream>
using namespace std;
int main() {
    int *ptr = NULL;
    cout << " Output: In Program";
    delete ptr;
    return 0;
}

```

11. What is the output of the following code?

```

#include <iostream>
using namespace std;
struct emp {
    int a;
    emp ( int b): a(b){ }
    ~emp(){ cout << " Destroyed " ;}
    void disp(){ cout << " In Display " ; }
}

```

```
};
int main(){
    emp e(20);
    cout << e.a ;
    e.disp();
}
```

12. What is the output of the following code ?

```
#include <iostream>
using namespace std ;
namespace Ex { int x = 10; }
namespace Ex { int y = 10; }
int main(){
    using namespace Ex ;
    x = y = 50;
    cout << x << " " << y;
}
```

13. Find the O/P of the Following program

```
#include<iostream>
using namespace std;
class Test { int x;
    public:
    Test(int i) : x(i) {}
    friend void print(const Test& a);
};
void print(const Test& a) {
    cout << "x = " << a.x;
}
int main(){
    Test t(10);
    print(t);
    return 0;
}
```

14. What is the O/P of the following Program ?

```
#include <iostream>
using namespace std;
class sample {
    public:
    int x, y;
    sample() {} ;
    sample(int, int);
    sample operator + (sample);
};
sample::sample (int a, int b) {
    x = a;
    y = b; }
sample sample::operator+ (sample param) {
```

```

    sample temp;
    temp.x = x + param.x;
    temp.y = y + param.y;
    return (temp);
}
int main () {
    sample a (4,1);
    sample b (3,2);
    sample c;
    c = a + b;
    cout << c.x << " " << c.y;
    return 0;
}

```

15. Find O/P of the Following Program

```

#include <iostream>
using namespace std;
class Test {
    int i;
public:
    Test(int ii) : i(ii) {}
    const Test operator+(const Test& rv) const {
        cout << "Executes +" << endl;
        return Test(i + rv.i);
    }
    Test& operator+=(const Test& rv) {
        cout << "Executes += " << endl;
        i += rv.i;
        return *this;
    }
};
int main() {
    int i = 1, j = 2, k = 3;
    k += i + j;
    Test ii(1), jj(2), kk(3);
    kk += ii + jj;
}

```

16. Find the output of the following Program.

```

#include <iostream>
using namespace std;
class Animal {
public:
    int legs = 4;
};
class Dog : public Animal {
public:
    int tail = 1;
};

```

```

int main() {
    Dog d;
    cout << d.legs;
    cout << d.tail;
    return 0;
}

```

17. Look at the code snippet bellow. Find out, which of the show() function will be called by calling b->show().

```

class Base {
public:
    void show() { }
};
class Derived :public Base {
public:
    void show() { }
};
int main() {
    Base* b;    //Base class pointer
    Derived d; //Derived class object
    b = &d;
    b->show(); //Early Binding Occurs
    return 0;
}

```

18. What will be the output of the following Code snippet ?

```

class B {
public:
    B() { cout << "B "; }
    ~B() { cout << "~B "; }
};
class C : public B {
public:
    C() { cout << "C "; }
    ~C() { cout << "~C "; }
};
class D : private C {
    B data_;
public:
    D() { cout << "D " << endl; }
    ~D() { cout << "~D "; }
};
int main() {
    {D d; }
    return 0;
}

```

19. What will be the output of the following program ?

```

#include<iostream>
using namespace std;
class Shape {
public:
    int x, y;
    Shape(int a = 0, int b = 0): x(a), y(b) {}
    void draw()
    { cout << x << " " << y << " "; }
};
class Rectangle : public Shape {
public:
    int w, h;
    Rectangle(int a = 5, int b = 6): w(a), h(b), Shape(7, 8) {}
    void draw() { Shape::draw(); cout << w << " " << h ; }
};
int main() {
    Rectangle *r = new Rectangle(1,2);
    r-> draw();
    return 0;
}

```

20. What will be the output/Error of the bellow code snippet ?

```

class Base {
public:
    virtual void show() = 0;
};
class Derived : public Base{
public:
    void show(){ cout << "Virtual Function";}
};
int main(){
    Base obj;
    Base *b;
    Derived d;
    b = &d;
    b->show();
}

```

21. What will be the output of the following program ?

```

#include<iostream>
using namespace std;
class base {
public:
    base() { cout << "c"; }
    virtual ~base() { cout << "~c"; }
};
class derived : public base {
public:
    derived() { cout << "d"; }
}

```



```

    ~derived() { cout << "~d"; }
};
int main(void){
    {
        derived *d = new derived();
        base *b = d;
        delete b;
    }
    return 0;
}

```

22. What will be the output of the following Code Snippet ?

```

class Instrument {
public:
    virtual void play() { cout << "1 "; }
};
class Wind : public Instrument {
    void draw() { Instrument::play(); cout << "2 "; }
};
class Percussion : public Instrument {
};
class Woodwind : public Wind {
public:
    void play() { Instrument::play(); cout << "3 "; }
};

class Brass : public Wind {
public:
    void play() { Instrument::play(); cout << "4 "; }
};
class Drum : public Percussion {
public:
    void play() { Instrument::play(); cout << "5 "; }
};
class Tambourine : public Percussion {
public:
    void play() { Instrument::play(); cout << "6 "; }
};
int main() {
    Instrument *arr[] = { new Woodwind, new Brass, new Drum, new Tambourine };
    for (int i = 0; i < sizeof(arr) / sizeof(Instrument *); ++i) arr[i]->play();
    return 0;
}

```

23. What will be the output of the following code snippet ?

```

class A { public: int i; };
class B { public: double d; };

```

```

A a;
B b;
a.i = 8;
b.d = 9.7;
A *p = &a;
B *q = &b;

p = (A*)&b;
q = (B*)&a;

cout << p->i << endl;
cout << q->d << endl;

```

24. Find out the output of the following program ?

```

#include <iostream>
using namespace std;
int fun(int* ptr){
    return (*ptr + 10);
}
void fun(int& ptr){
    ptr = 100;
}

int main(void){
    const int val = 10;
    const int *ptr = &val;
    int *ptr1 = const_cast <int *>(ptr);
    *ptr1 = fun(ptr1);
    fun(*ptr1);
    cout << *ptr;
    return 0;
}

```

25. What will be the output of the following program ?

```

#include<iostream>
using namespace std;
class Person {
public:
    Person(int x) { cout << 2 * x << " "; }
    Person() { cout << 3 << " "; }
};

class Faculty : virtual public Person {
public:
    Faculty(int x) :Person(x) {
        cout << 3 * x << " ";
    }
}

```

```

    }
};
class Student : virtual public Person {
public:
    Student(int x) :Person(x) {
        cout << 3 * x << " ";
    }
};
class TA : public Faculty, public Student {
public:
    TA(int x) : Student(x), Faculty(x) {
        cout << 5 * x << " ";
    }
};
int main() {
    TA ta1(30);
}

```

26. Consider the following code snippet. What will be output of the code below?

```

class Base {
protected:
    int marker;
public:
    Base(int m = 4) : marker(m) {}
    virtual ~Base() {};
    virtual void Action() { ++marker; }
};
class Derived : public Base {
public:
    void Action() {
        static_cast<Base>(*this).Action();
        marker *= 2;
        cout << marker << endl;
    }
};
int main() {
    Base *p = new Derived;
    p->Action();
    return 0;
}

```

27. What will be the O/P of the following Program.

```

int main(){
    try {
        throw 'a';
    }
    catch (int x) {

```

```

        cout << "Caught 1 " << x;
    }
    catch (double x) {
        cout << "Caught 2 " << x;
    }
    catch (string x) {
        cout << "Caught 3 " << x;
    }
    catch (...) {
        cout << "Default Exception";
    }
    return 0;
}

```

28. What will be the output of the following code snippet?

```

void myFunction(int test) {
    try{
        if (test)
            throw test;
        else
            throw "Value is zero";
    }
    catch (int i) {
        cout << "CaughtOne ";
    }

    catch (const char *str) {
        cout << "CaughtString ";
    }
}

```

```

int main() {
    myFunction(1);
    myFunction(2);
    myFunction(0);
    myFunction(3);
    return 0;
}

```

29. What will be the output of the following code snippet ?

```

#include<iostream>
using namespace std;

struct MyException : public exception {
    const char * what () const throw () {
        return "C++ Exception";
    }
}

```

```

};

int main() {
    try {
        throw MyException();
    } catch(MyException& e) {
        std::cout << "MyException caught" << std::endl;
        std::cout << e.what() << std::endl;
    } catch(std::exception& e) {
        std::cout << "Exception caught" << std::endl;
        std::cout << e.what() << std::endl;
    }
}

```

30. What will be the output of the following program ?

```

#include <iostream>
using namespace std;

class Test {
public:
    Test() { cout << "In Constructor" << endl; }
    ~Test() { cout << "In Destructor " << endl; }
};

int main() {
    try {
        Test t1;
        throw 10.00;
    }
    catch(int i) {
        cout << "Caught Integer " << i << endl;
    }
    catch(...) {
        cout << "Caught Default" << endl;
    }
    return 0;
}

```