

Review Problems for Midterm Exam

1. Which of the following are not valid assignment statements?

- a) `char letter;`
- b) `letter = w;`
- c) `letter = 'w';`
- d) `letter = "w";`

2. Which of the following are not valid C++ statements?

- a) `cout<<"Hello"<<endl;`
- b) `cout<<"Hello"<<\n;`
- c) `cout<<"\nHello\n";`
- d) `cout<<\n<<"Hello\n"<<endl;`

3. Write the value of result to the right of each assignment statement:

```
int x=4, y=7, z=2, result;
result = x+y;
result *= 2;
result = y+z;
result /= y;
```

4. What is the exact output of the following program?

```
#include <iostream>
using namespace std;

int main()
{
    cout<<"Be careful!\n";
    cout<<"This might/n be a trick ";
    cout<<"question.\n";
    return 0;
}
```

5. What is the output of the following program?

```
#include <iostream>
using namespace std;

int main()
{
    int a, x=23;
    a=x%2;
    cout<<x<<endl<<a<<endl;

    return 0;
}
```

6. Find as many errors as you can in the following program.

```
#include iostream
using namespace std;

int main();
}
    int a, b, c\\Three integers
    a=3
    b=4,
    c=a+b;
    Cout< "The value of c is %d"<<C;

    return 0;
}
```

7. Write C++ expressions for the following algebraic expressions:

- a) $a = 12x$
- b) $b = 15x + 14y + 6k$
- c) $f = \frac{h+12}{4k}$
- d) $g = \frac{a^{55}}{b^{33}k^2}$

8. Complete the following table by writing the values of each expression in the Value column.

Expression	Value
$28 / 4 - 2$	
$6 + 12 * 2 - 8$	
$4 + 8 * 2$	
$6 + 17 \% 3 - 2$	
$2 + 22 * (9 - 7)$	
$(8 + 7) * 2$	
$(16 + 7) \% 2 - 1$	
$12 / (10 - 6)$	
$(19 - 3) * (2 + 2) / 4$	

9. What is output of the following program?

```
#include <iostream>
using namespace std;
#define WHO "Columbus"
#define DID "sailed"
#define WHAT "the ocean blue"

int main()
{
    const int WHEN = 1492;
    cout << "In " << WHEN << " " <<WHO << " "
        << DID << " " <<WHAT <<endl;
    return 0;
}
```

10. Assume the user enters "I like C++ Programming.", what is the output of the following program?

```
#include <iostream>
#include <iomanip>
#include <string>
using namespace std;

int main()
{
    string str;
    char ch;
    cout << "Enter a line => ";
    cin.get(ch);
    cin >> str;
    cout<< "We " << str;
    getline(cin, str);
    cout<< " " <<str<<endl;
    return 0;
}
```

11. Find as many errors as you can in the following program.

```
Using namespace std;
Int main()
{
    Double number1, number2, number3;
    Cout << "Enter a number: ";
    Cin >> number1;
    cout >> "Enter another number: ;"
    cin >> number 2,
    number1 + number2 = sum;
    cout << `The sum of the two numbers is " << sum;
}
```

12. Find as many errors as you can in the following program.

```
#include <iostream>
using namespace std
int main()
{
    const int number1, number2, product;
    cout << "Enter to numbers and I will multiply\n";
    cout << "them for you.\n";
    cin>>number1, number2;
    product = number1 * number2;
    cout << product;
    return 0;
}
```

13. Convert the following switch statement into if-else statement:

```
switch (grade)
{
case 'A':
case 'a':
    cout<<"Great!"<<endl;
    break;
case 'B':
    cout<<"very good"<<endl;
    break;
case 'C':
    cout<<"also very good"<<endl;
    break;
default:
    cout<<"That's not my grade."<<endl;
}
```

14. Convert the following if-else statement to a switch statement:

```
int x;
cout<<"Give me an int and I tell you whether is even of odd ";
cin>>x;
if (x%2==0)
    cout<<x<<" is even."<<endl;
else
    cout<<x<<" is odd."<<endl;
```

15. Write a segment of code to ask the user to enter two integers. The code shall use if-else statement to find the larger of the two integers.

16. What will the following code print?

```
int num;
num = 8;
cout << --num << " ";
cout << num++ << " ";
cout << num;
```

17. Convert the following while loop into a for loop:

```
int i = 5, n = 10;
while (i<=n)
{
    cout<<i;
    i++;
}
```

18. What is the output of the following code?

```
int sum = 0;
for (int j=0; j<10; j+=2)
    sum +=j;
cout <<sum<<endl;
```

19. What is the output of the following code?

```
int i = 5;
cout<<"i="<<i<<endl;
do
{
    if (i > 0) break;
    cout<<i<<" ";
}
while (i>0);
cout<<"i="<<i<<endl;
```

20. What is the output of the following code?

```
int i = 0, sum = 0;
do
{
    i++;
    if (i % 2 == 0 || i % 3 == 0) continue;
    sum += i;
}
while (i<10);
cout<<sum;
```

21. Find as many errors as you can in the following code.

```
for(int i = 1, i<=5; i++) {
    for(int j = 1; j<=5 && j>0; ++j;)
        cout<<"*";
    cout<<\n;
}
```

22. Write a program that computes a product of even integers from 1 to 100, i.e., $2 \times 4 \times 6 \times 8 \times \dots \times 98 \times 100$.

23. Write a program that prints a 100x100 square, where odd columns contain values `O' and even columns contain values `E'. For example, the 6x6 square looks prints as

```
OEOEOE
OEOEOE
OEOEOE
OEOEOE
OEOEOE
OEOEOE
```