

Assignment
Computer Science C++

Topic: Data Handling, Operators & Expressions

Q 1 What are 'enumerations'? Explain through example

Q 2 Explain all the six fundamental data types.

Q 3 Write a program to check whether a given number is even or odd.

Q 4 What will be the value returned by the following if value assigned to integer variable k is 3 ?

a) $k < 2$

b) $k = 2$

c) $k <= 3 || k > 4$

Q 5 What is the value of i and j in the two cases given below?

a) $i = 7$

$j = i++$

b) $i = 8$

$j = --i$

Q 6 What will be the value assigned to integer variable x as under:-
 $Z = a * x * x + b * x + c$ where a, b, c and x are 2, 4, 5 and 3 respectively?

Q 7

Evaluate $x += x++ + ++x$ if, initially $x = 15$.

Q 8 Given the following code fragment

```
int marks=25;
```

```
cout << ++marks << "n";
```

```
cout << marks << "n";
```

(i) What output does the above code fragment produce?

(ii) What is the effect of replacing $++marks$ with $marks++$?

(iii) What is the effect of replacing $++marks$ with $marks+1$?

Q 9 What will be the output of the code segment given below:

```
int a = 200, b=7;
```

```
cout << a/b << endl;
```

Q 10 If initially, the value of name = 100, then what will be the output of the code given below:-

```
cout << name -- ;
```

```
cout << ++ name ;
```

Q 11 What will be the result of the following expressions, if initial value of I = 20?

1) $++I <= 20$ 2) $I++ <= 20$

Q 12

Construct logical expressions to represent the following conditions:

(a) exp is a lowercase letter

(b) Marks is in the range 400-500 or grade is 'A'

(c) Grade is 'B' and experience is more than 5 years.

Q 13 Write a statement that uses a conditional operator to set grade = 'A', if marks is more than 70 and B otherwise.

Q 14 **Given the two expressions**

```
marks=10
```

marks==10

What is the difference between the two expressions?

Q 15

Suppose a and b are two type double variables that we want to add as integers and assign to an integer variable. Construct a C++ statement for doing so?

Q 16

Given the following set of declarations :

char ch;

int i, j, k;

float a, b, c;

double p,q;

Which of the following are valid arithmetic expressions?

- a) ch=100
- b) i-j+k
- c) i%k
- d) a%b+c-k
- e) p+q/b>i

Q 17 What will be the resultant type of the following expression if int is an integer variable and fl is a float variable?

Q 18 Write the corresponding C++ expressions for the following mathematical expressions:

(a) $(\cos x / \sin^{-1} x) + y$

(b) $(x^2 + y^2 + z^2)^{1/2}$

(c) $|e^y + y|$

(d) $a + b / (x + y)^7$

Q 19

Given the following set of declarations:

int x, y, z, d; float p, q, r; double a, b, c ;

Which of the following are valid arithmetic expressions and which are invalid. And state the reason why they are invalid.

- (a) $(\text{ceil}(p) + x) z.$
- (b) $a b * c / d.$
- (c) $c/p + y * x / z.$
- (d) $\log(-18) + x/ y.$
- (e) $x*+d$

Q 20 Which header file must be included to make use of C++'s built-in mathematical functions?

Q 21

Evaluate the following C++ expression

int x, ch=5, n=10;

$x = ch * 7 / 4 + ch / 5 + 25 - ch + 7 / 2 + 3 / 11$

Q 22 What is type conversion? What is meant by implicit and explicit type conversion?

Q 23 Given the following set of identifiers:

char ch;

short sh;

int inval;

long lg;

```
float fl;  
double db;
```

Identify the data type of the following expressions:

- a) $4.55 + 'z'$
- b) $(fl * lg) + inval$
- c) $ch/inval + fl * db - (long/sh)$

Q 23

Write a statement to print the size of

- (i) double type on your machine.
- (ii) a long int variable result.

Q 24

Suppose a and b are two type float variables that we want to add as integers and assign to an integer variable *marks*. Construct a C++ statement to do so.

Q 25 Write a program to input three integers and print the largest of them.

Q 26

The following code is giving error. Can you detect the error and help in successful compilation of this code?

Code:

```
# include < iostream.h >  
void main ()  
{ int x, y ;  
  cin >> y;  
  cout << "The square root of y is :"  
  << sqrt (x) ;  
}
```

Q 27 Distinguish between a structure and an array?