Detailed solutions of quiz

1) What is a variable in C++?
   Variable is a named memory location.

   int a = 7;
      ↑ variable of integer data type.

2) What is the default value of uninitialized variable in C++?

   int a; → not initialized with value

   The meaning of question is that what will happen if we cout << a;

   The answer to the question is that any garbage value can be placed in a & hence the answer to the question is undefined.

   any garbage value.

3) Which of the following is a valid variable name in C++?

   ✓ a) int_var → Underscore is allowed.
   b) int var → Space not allowed in var names.
   c) int.var → Period not allowed in var names
   d) int-var → Hyphen not allowed in var names

   Only special character which is allowed in the

name of variable is underscore.

4) What is the keyword used to declare a constant variable in C++?
Constant variable means fixed i.e once we have given it a value, it can not be changed.

    const int a = 7;
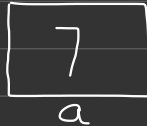   This keyword is used.

5) How can we assign a value to variable name?
This is done with the help of assignment operator.

                        → assignment operator
        variable_name = value;

int a ;
  a = 7 ;

7
a

6) Difference b/w global & local variable in C++.
Global variables can be accessed from anywhere in the program.

Local variables can be accessed within the scope in which it is defined.

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

int global = 3;   → global variable
        ↳ name can be anything

int main () {
        cout << global << endl;   → works fine

        if (global < 5) {
                int a = 4;   → Local variable
                cout << a << endl;   → works fine
        }
        cout << a << endl;   → Gives error
        cout << global;   → works fine
}
```

7) By which operator can if-else be replaced?
Conditional operator is also known as
the ternary operators & it works same as
if – else.

```cpp
if (cond1) {
    // Hi
}
else { //Hey }
```

} →   (cond1) ? Hi : Hey;

cond1 → false
            ↑
(cond1) ? Hi : Hey;
            ↓
cond1 → True

8) How we declare a variable with specific data type ?

int   a ;

data type ←⏌   ↳ variable name

9) Identify correct example of pre-increment operator.

int a = 3 ;   int a = 3 ;
int b = ++a ;   int b = a++ ;
        ↳ b = 4   ↳ b = 3

Pre-increment means first we have to increment & then assign.
Post-increment means first assign & then we have to increment

++a   Pre-increment
a++   Post-increment

10) What is data type of 19.54?
    Can be both float & double as it has decimal point.

11) Identify correct function from which the execution of C++ starts ?

Execution of a program will always start from main() function.

12) Other name of constants in C++?
Constants in C++ are also known as literals.

13) Identify size of int data type.
4 bytes in most of the cases. Try sizeof operator in your system.

14) ASCII value of '\0' character?
\0 is basically NULL & its ASCII value is 0. Verify it from ASCII table.

15) Identify correct range of signed char.

Formulae → -2^{n-1} to $2^{n-1} - 1$
                    n → no. of bits
n = 8 bits (1 byte)

-2^7 to $2^7 - 1$
-128 to 128-1 ⟹ -128 to 127

16) Identify logical AND operator
&& → AND (Logical)
|| → OR

17) How many bytes of memory does void occupy?

   void → means empty & hence this occupies 0 bytes of memory space.

18) Why are comments used?
Comments are ignored by compiler. These help others to read & understand our code.

   // This is a comment → Way to add
                                                comment

   /*
      This
      is
      comment
   */   } Multiline comments

19) Total types of errors in C++.
There can be many errors but there are 3 major errors namely :

   i) Syntax
   ii) Logical
   iii) Runtime

Linker, semantic, compile time errors also exist

20)　main ( ) {
　　　int a = 10 , b , c ;
　　　b = a++ ; c = a ;
　　　cout << a << "　" << b << " " << c <<
　　　　　　　　　　　　　　　　endl ;
　　}

10		
a	b	c

b = a++ → First assign & then increment

b = 10 ,　a = 11

11	10	
a	b	c

c = a ⟹　c = 11

11	10	11
a	b	c

O/p → 11　10　11

(21)
```
main ( ) {
      int a, b = 10;
      a = 95/10;
      cout << a << endl;
}
```
Typecasting concept is used here.

$$\frac{95}{10} = 9.5$$ but it gets typecasted to 9 as we only need integer part.

O/p → 9

(22) How many times print statement will be executed ?

```
main ( ) {
   1. int i = 0;
   2. label :
   3. cout << "Hello ji";
   4. i++;
   5. if (i < 3) { goto label; }
}
```

As this is encountered, the control goes to line 2.

i = 0   Hello ji   i = 3 → condition
i = 1   Hello ji   false &
i = 2   Hello ji   end

3 times print statement is executed.

(23) O/p of following code?

```
int a = 0;
int b = 6;
int c = 6/0;  → This is divide by zero
cout << c << endl;       exception.
}
```

(24) O/p of following?

```
main() {
    int i = (1,2,3);
    cout << i << endl;
}
```

Associativity of , operator is from left to right & hence rightmost value will be assigned to i.

i = 3 → output will be 3

(25) Which of the following is correct identifier?

(a) var12 → No issue
(b) 12var → Can not start with a number
(c) &var → Can not have & special character
(d) 2-var → Can not start with a number

**

(26)   O/p of following code :

```
void typecasting1() {
    int x = 10;
    char y = 'a';
    x = x + y;
    float z = x + 1.0;

}
```

$x = 10$ $y = a$

$x = 10 + 'a'$
↑   ↑
int   typecast to int
                 ↳ ASCII value of a

$x = 10 + 97 = 107$

$z = 107 + 1.0 = 108$ // .o is ignored

$z = 107 + 1.1 = 108.1$ // .l won't be
                            ignored

(27) O/p of following code ?

```
main() {
    double x = 1.2;
```

```cpp
    int sum = (int) x + 1;
    cout << sum;
}
```

x = 1.2   → Concept of typecasting is
sum = (int) 1.2 + 1;   used.
sum =   1 + 1
sum = 2