

1. Which of the following statement is correct?
 - a) System software is dependent on application software
 - b) Application software is dependent on system software
 - c) Both are independent of each other
 - d) None of the above.

Solution: (b) System software is independent of the application software. Application software cannot run without the presence of system software.

2. Which of the following is not an C variable?
 - a) Var123
 - b) Var_123
 - c) 123Var
 - d) X_123_Var

Solution: (c) Variable name must not begin with a digit. So, '123Var' is invalid variable declaration in C.

3. The execution of any C program is
 - a) Sequential
 - b) Parallel
 - c) Multi-threading
 - d) None of these

Solution: (a) The execution of C program is sequential.

4. Which of the following is not a correct variable type in C?
 - a) int
 - b) float
 - c) complex
 - d) double

Solution: (c) complex is not a correct variable type in C

5. What is the output of the following C code?

```
#include <stdio.h>
int main()
{
    int var = 0101;
    var=var+5;
    printf("%d", var);
    return 0;
}
```

- a) 106
- b) 70
- c) 10
- d) Compiler error

Solution: (b) 0101 is octal representation of 65. Thus 65 +5=70 will be stored in var.

6. A function is

- a) Block of statements to perform some specific task
- b) It is a fundamental modular unit to perform some task
- c) It has a name and can be used multiple times
- d) All of the above

Solution: (d) All are true

7. What will be the output? [N.B:- .2f is used to print up to 2 decimal places of a floating point number]

```
#include <stdio.h>
int main()
{
    float a = 7.0;
    printf ("The output is %.2f", (13/5)*a + 10);
    return 0;
}
```

- a) 28.2
- b) 21.00
- c) 24.00
- d) 21.2

Solution: (c) 24.00

Since 13 and 5 are integers, integer arithmetic happens in subexpression (13/5) and we get 2 as its value. The calculation will be as follows: $(13/5)*a+10 = 2*7.0+10 = 24.00$

To fix the above program, we can use 13.0 instead of 9 or 5.0 instead of 5 so that floating point arithmetic happens.

8. What is the output of the following program? (Assuming that the program is run on an 8-bit system)

```
#include <stdio.h>
int main()
{
    int b = 'dd';
    printf("%d", b);
    return 0;
}
```

- a) 100
- b) 25700
- c) 100100
- d) Compilation error

Solution: (b) Assuming int is of 2 bytes, starting byte is occupied by first character 'd' and second byte by second character 'd'. Therefore, overall binary involves 0110010001100100 i.e. $2^{14} + 2^{13} + 2^{10} + 2^6 + 2^5 + 2^2 = 25700$.

9. What is the output of the following program?

```
#include <stdio.h>
#define a 6
```

```
int main()
{
    int a=3;
    a=a+1;
    printf("%d",a);
    return 0;
}
```

- a) 6
- b) 3
- c) 4
- d) Compilation error

Solution: (d) #define is a pre-processor and 6 is stored in a. Thus 'a' cannot be declared as a variable. Thus, the compiler will return compilation error.

10. We use the concept of function for the following reason

- a) To use divide and conquer strategy
- b) For code reusability
- c) Enhances the logical clarity of the program
- d) All of the above.

Solution: (d) All of the above.

11. Which of the following statement is correct?

- I. Keywords are those words whose meaning is already defined by Compiler.
- II. Keywords cannot be used as variable name.
- III. There are 32 keywords in C
- IV. C keywords are also called as reserved words.

- a) I and II
- b) II and III
- c) I, II and IV
- d) All of the above

Solution: (d) All of the above are correct.

12. What will be the output of the program given below?

```
#include <stdio.h>
int main()
{
    a=9;
    printf("%d",a);
    return 0;
}
```

- a) 9

- b) 0
- c) 1001
- d) Compilation Error

Solution: (d) Variable a is not declared in the scope. Hence compilation error.

13. The output of the program is

```
#include<stdio.h>
int main()
{
    int x=1; y=5; z=8;
    z=x+y;
    printf("%d",z);
    return 0;
}
```

- a) 6
- b) 8
- c) 0
- d) Compilation error

Solution: (d) While initializing the variables, “;” indicates the end of the line. Thus after initializing the variable x, the line ends. y and z will be undeclared data type. So, the error will be “y and z are not declared in the scope”.

14. The ratio of the memory allocated to int, float and char variable in C is

- a) 1:2:1
- b) 2:3:1
- c) 2:1:4
- d) 2:4:1

Solution: (d) Integer takes 2 units of memory (8 bit or 16 or higher bits for each unit depending on the processing power of computer), float takes 4 units and character takes 1 unit of memory. Thus, the ratio is 2:4:1

15. If integer needs two bytes of storage, then the minimum value of a signed integer in C would be

- a) $-(2^{16} - 1)$
- b) 0
- c) $-(2^{15} - 1)$
- d) -2^{15}

Solution: (d) The first bit is used to indicate whether it is signed or unsigned integer.