1. Which of the following is not a C variable?
    a) Count123
    b) Count_123
    c) Count@123
    d) X_123_Count

Solution: (c) Only alphanumeric characters and few special characters like '_' are allowed in variable name is C. The special character @ is not allowed.

2. A function

    a) is a block of statements to perform some specific task
    b) is a fundamental modular unit to perform some task
    c) has a name and can be used multiple times
    d) All the above options are true

Solution: (d) All the above options are true

3. 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.

4. Syntax error occurs when
    a) The rules of grammar of the programming language is violated
    b) The statements in the program have no meaning
    c) The program gives wrong or undesired output
    d) Some illegal operation(e.g. divide by zero) is done

Solution: (a) The rules of grammar of the language is violated

5. 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.

6. 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.

7. What is the output?

```
#include<stdio.h>
#define fun(x) (x*x)
int main()
{
    float i;
    i = 64.0/fun(2);
    printf("%.2f", i);
    return 0;
}
```

a) 8.00

b) 4.00

c) 0.00

d) 16.00

Solution: (d) The pre-processing replaces fun(2) with (2*2). Thus fun(2)=4, so, i=64.0/4=16.00

8. What will be the output?

```
#include <stdio.h>
int main()
{
   float a = 6.0;
   printf ("%.2f", (9/5)*a + 11);
   return 0;
}
```

a) 21.00

b) 19.00

c) 0.00

d) 17.00

Solution: (d) 17.00

Since 9 and 5 are integers, integer arithmetic happens in subexpression (9/5) and we get 1 as its value. To fix the above program, we can use 9.0 instead of 9 or 5.0 instead of 5 so that floating point arithmetic happens.

9. The following C program converts the temperature from Celsius (C) to Fahrenheit (F). Fill the blanks with the proper formula to do it.

```
#include <stdio.h>
int main()
{
    float C = 37.5, F;
    F = _____;
    printf("%.2f", F);
    return 0;
}
```

a) 1.8*C +32

b) 1.8*(C + 32)

c) 1.8*C - 32

d) C/1.8 + 32

Solution: (a) 1.8*C +32. The formula is $\frac{C}{5} = \frac{F-32}{9}$, that is simplified to the given option (a).

10. The following C program swaps the value of two numbers without using any third variable. What will be the correct option to fill up the blank?

```
#include <stdio.h>
int main()
{
    int a=2, b=3;
    printf("The values before swapping a = %d, b=%d",a,b);

    _____

    printf("The values after swapping a = %d, b=%d",a,b);
    return 0;
}
```

a) a=a-b; b=a-b; a=a+b;

b) a=a%b; b=a+b; a=a/b;
c) a=a+b; b=a-b; a=a-b;
d) None of the above

Solution: (c) a=a+b; b=a-b; a=a-b;