2_Control_statements

1. What are the control statements?
2. What is the difference between iterative control statements and non-iterative statements?
3. What is the difference between conditional non-iterative and unconditional non-iterative statements?
4. Tell me about if condition
5. What is difference between below syntaxes:
   1. if(exp)
      {
          s1;
          s2;
          s3;
      }
   2. if(exp)
      s1;
      s2;
      s3;
   3. if(exp);
      s1;
      s2;
      s3;
6. What is output of below codes::
   1. #include<stdio.h>
   int main(){
          printf("Hello...\n");
          if(0)
          printf("Hai...\n");
          printf("Bye...\n");
          return 0;
   }
   2. #include<stdio.h>
   int main(){
          printf("Hello...\n");
          if(0);
          printf("Hai...\n");
          printf("Bye...\n");
          return 0;
   }
   3. #include<stdio.h>
   int main(){
          printf("Hello...\n");
          if(10)
          printf("Hai...\n");

```
        printf("Bye...\n");
        return 0;
}
4. #include<stdio.h>
int main(){
        printf("Hello...\n");
        if(10);
        printf("Hai...\n");
        printf("Bye...\n");
        return 0;
}
5. #include<stdio.h>
int main(){
        printf("Hello...\n");
        if(-10)
        printf("Hai...\n");
        printf("Bye...\n");
        return 0;
}
6. #include<stdio.h>
int main(){
        printf("Hello...\n");
        if(-10);
        printf("Hai...\n");
        printf("Bye...\n");
        return 0;
}
7. #include<stdio.h>
int main(){
        printf("Hello...\n");
        if(0){
        printf("Hai...\n");
        printf("Bye...\n");
        }
        return 0;
}
8. #include<stdio.h>
int main(){
        printf("Hello...\n");
        if(0);{
        printf("Hai...\n");
        printf("Bye...\n");
        }
        return 0;
```

```
}
9. #include<stdio.h>
int main(){
        printf("Hello...\n");
        if(10){
        printf("Hai...\n");
        printf("Bye...\n");
        }
        return 0;
}
10. #include<stdio.h>
int main(){
        printf("Hello...\n");
        if(-10){
        printf("Hai...\n");
        printf("Bye...\n");
        }
        return 0;
}
11. #include<stdio.h>
int main(){
        printf("Hello...\n");
        if(10);{
        printf("Hai...\n");
        printf("Bye...\n");
        }
        return 0;
}
12. #include<stdio.h>
int main(){
        printf("Hello...\n");
        if(-10);{
        printf("Hai...\n");
        printf("Bye...\n");
        }
        return 0;
}
```

7. Tell me more about if…else condition
8. WAP to check if the number is zero or not?
9. If below expressions are in if condition then which expression if consider.

```
if(exp1,exp2,exp3)
 {
        s1;
        s2;
```

```
        s3;
    }
```

10. WAP to scan a character from a user. Find its ASCII value only if the given input is a small letter.
11. WAP to scan a character from the user and display its lower case or upper case.
12. WAP to scan a character from the user and check lower case, upper case, digit and special case.
13. WAP to scan student marks and print grade accordingly::
    1. 0-39 :: Fail
    2. 40-59 :: C
    3. 60-74 :: B
    4. 75-100::A
14. What is nested if. And write this code using nested if.
    1. 0-39 :: Fail
    2. 40-59 :: C
    3. 60-74 :: B
    4. 75-100::A
15. WAP to scan num and bit position from user. After that display menu for set/clear/compliment.
    Take options from the user. Depending on the option, perform a task and display the result.
16. In the above code I want to add functionality like to check position it should be 0 to 31 not other and it checks only 3times, if user is not given 3 times correct position then it stops the application.
17. What is a goto statement?
18. What is the output of below code::

```
#include<stdio.h>
int main(){
        printf("Hello...\n");
        L1:
        printf("Hai...\n");
        goto L1;
        printf("Bye...\n");
        return 0;
}
```

    Here Bye… is printing or not?
19. What is the output of below code::

```
#include<stdio.h>
int main(){
        printf("Hello...\n");
        goto L1;
        printf("Hai...\n");
        L1:
        printf("Bye...\n");
```

```
        return 0;
}
```
20. What is the output of below code::
```
#include<stdio.h>
int main(){
        printf("Hello...\n");
        goto 1;
        printf("Hai...\n");
        1:
        printf("Bye...\n");
        return 0;
}
```
21. WAP to display a multiplication table of a given number using a goto statement.
22. WAP to print binary format of given number using goto statement.
23. What is for loop?
24. When we don't use bracket{} in for loop then which statement to consider?
25. What is the output of below code::
```
#include<stdio.h>
void main(){
        int i;
        printf("Hello...\n");
        for(i=0;i<5;i++)
        printf("Hai... i=%d\n",i);
        printf("Bye... i=%d\n",i);
}
```
26. What is the output of below code::
```
#include<stdio.h>
int main(){
        int i,j;
        for(i=0,j=10;i<j;i++,j--)
                printf("Hello i=%d j=%d\n",i,j);
        printf("Bye i=%d j=%d\n",i,j);
        return 0;
}
```
27. Which expression is consider for below for loop:
```
for(;c1,c2,c3;){

}
```
28. What is the output of below code::
```
#include<stdio.h>
int main(){
        int i;
        for(;i=10,i=20,i=0;)
                printf("Hello i=%d\n",i);
```

```
        printf("Bye i=%d\n",i);
        return 0;
}
```

29. What is the output of below code::

```
#include<stdio.h>
int main(){
        int i=10;
        for(;i>=0;i--)
                printf("Hello i=%d\n",i);
        printf("Bye i=%d\n",i);
        return 0;
}
```

30. What is the output of below code::

```
#include<stdio.h>
int main(){
        unsigned int i=10;
        for(;i>=0;i--)
                printf("Hello i=%d\n",i);
        printf("Bye i=%d\n",i);
        return 0;
}
```

31. What is the output of below code::

```
#include<stdio.h>
int main(){
        int i;
        for(i=0;i<10;i++);
                printf("i=%d\n",i);
        return 0;
}
```

32. What is the output of below code::

```
#include<stdio.h>
int main(){
        int i;
        for(i=0;i<10;i--);
                printf("i=%d\n",i);
        return 0;
}
```

33. What is the output of below code::

```
#include<stdio.h>
int main(){
        int i;
        for(i=0;i<10;i++);
        {
                printf("i=%d\n",i);
```

```
        }
        return 0;
}
```

34. What is the output of below code::

```
#include<stdio.h>
int main(){
        for(;;)
        {
                printf("Hai...\n");
        }
        return 0;
}
```

35. for(i=2;_____; i=i+2)
    I want to rotate 10 times then what should be the condition?
36. I want to rotate 10 times half +ve and half -ve then what are the for loop conditions?
37. for(i=0;_____;i=i+5)
    I want to rotate five times then what should be the condition?
38. WAP to print a multiplication table using a for loop.
39. WAP to print a number into binary format.
40. WAP to count how many bits are set in a given number.
41. WAP to add the digits of a given number
    Ex:: i/p:: 123 o/p::1+2+3=6
42. WAP to reverse digits of a given number.
43. WAP to check if the number is an armstrong number or not?

An **Armstrong number** (also called a **narcissistic number**) is a number that is **equal to the sum of its own digits each raised to the power of the number of digits**.

Let's break it down 👇

💡 Definition:

A number `n` with `d` digits is an **Armstrong number** if:

$$n = (a_1)^d + (a_2)^d + (a_3)^d + \cdots + (a_d)^d$$

where $a_1, a_2, a_3, \ldots, a_d$ are the digits of the number.

🔢 Examples:

1. **153**
   - Number of digits = 3
   - $1^3 + 5^3 + 3^3 = 1 + 125 + 27 = 153$ ✅

     → **153 is an Armstrong number**
2. **370**
   - $3^3 + 7^3 + 0^3 = 27 + 343 + 0 = 370$ ✅
3. **9474**
   - Number of digits = 4
   - $9^4 + 4^4 + 7^4 + 4^4 = 6561 + 256 + 2401 + 256 = 9474$ ✅

❌ Non-Example:

123

$1^3 + 2^3 + 3^3 = 1 + 8 + 27 = 36 \neq 123$

→ Not an Armstrong number.

44. WAP to check if the number is a palindrome number or not?

A **palindrome number** is a number that **reads the same backward as forward.**

👉 In simple words:

If you reverse the digits of the number and it remains the same — it's a **palindrome.**

🔢 **Examples:**

Number	Reverse	Result
121	121	✅ Palindrome
1221	1221	✅ Palindrome
12321	12321	✅ Palindrome
123	321	❌ Not a palindrome

45. WAP to count no of digits in the given number
46. WAP to a given number add odd place digits and even place digits.
    Ex:: num= 4453625
    e_sum=5+6+5+4=20
    o_sum=2+3+4=9
47. WAP to sum odd digits and even digits of a given number.
    Ex:: num= 4453625
    e_sum=2+6+4+4=16
    o_sum=5+3+5=13
48. WAP for reversing the bits of a given number.
49. WAP to check if the given number is prime or not?
50. WAP to write the factors of a given number.
51. WAP to check if the given number is perfect or not?
52. What is bit masking? Give an example.
53. What is the output of below code::

```
#include<stdio.h>
int main(){
        int num=0x11223344;
        int r1;
        r1=num&0x000000FF;
        printf("r1=%X\n",r1);
        r2=num&0x0000FF00;
        printf("r2=%X\n",r2);
```

```
        r3=num&0x00FF0000;
        printf("r3=%x\n",r3);
        r4=num&0xFF000000;
        printf("r4=%x\n",r4);
}
```

54. WAP to convert little endian to big endian.
55. What is a while loop?When do we need to use that?
56. Which statements runs below codes and when::
    1.
```
while(exp){
        s1,
        s2;
        s3;
}
```
    2.
```
while(){
        s1;
        s2;
        s3;
}
```
    3.
```
while(exp);{
        s1;
        s2;
        s3;
}
```
57. Which one is an infinite loop and which one is a dummy loop?
    1.
```
while(1){

}
```
    2.
```
while(0){

}
```
    3.
```
while(-1){

}
```
58. What is the difference between for loop and while loop?
59. What is output of below code::

```
#include<stdio.h>
int main(){
        int i=0;
        while(i<5)
        {
                printf("Hello i=%d\n",i);
                i++;
        }
        printf("Hai i=%d\n",i);
```

```
        return 0;
}
```
Convert this code into a for loop.

60. What is output of below code::

```
#include<stdio.h>
int main(){
        int i=0;
        while(i<5)
                printf("Hello i=%d\n",i);
                i++;
        printf("Hai i=%d\n",i);
        return 0;
}
```

61. What is output of below code::

```
#include<stdio.h>
int main(){
        int i=0;
        while(i){
                printf("Hello i=%d\n",i);
                i++;
        }
        printf("Hai i=%d\n",i);
        return 0;
}
```

62. Below, Which condition is checked for while()?

```
while(c1,c2,c3){

}
```

63. What is the output of below codes::

1.
```
#include<stdio.h>
int main(){
        int i=1;
        while(i);{
        printf("Hello i=%d\n",i);
                i++;
        }
        printf("Hai i=%d\n",i);
        return 0;
}
```

2.
```
#include<stdio.h>
int main(){
        int i=0;
        while(i);{
        printf("Hello i=%d\n",i);
```

```
                i++;
        }
        printf("Hai i=%d\n",i);
        return 0;
}
```

64. What is the output of below code::

```
#include<stdio.h>
int main(){
        int i=1;
        while(1,2,3,0){
        printf("Hello i=%d\n",i);
                i++;
        }
        printf("Hai i=%d\n",i);
        return 0;
}
```

65. WAP to print multiplication table using while and for loop.
66. What is the nested loop?
67. What is output of below code::

```
#include<stdio.h>
int main(){
        int i,j;
        for(i=0;i<3;i++)
        {
                for(j=0;j<3;j++)
                {
                        printf("Hello i=%d j=%d\n",i,j);
                }
                printf("\n-------------------\n");
        }
        printf("Bye i=%d j=%d\n",i,j);
        return 0;
}
```

68. What is output of below code::

```
#include<stdio.h>
int main(){
        int i,j;
        for(i=0;i<3;i++)
        {
                for(i=0;i<3;i++)
                {
                        printf("Hello i=%d\n",i);//0 1 2
                }
                printf("\n-------------------\n");
```

```
        }
        printf("Bye i=%d\n",i);//4
        return 0;
}
```

69. If I want the outer loop to rotate for 10 times and inner loop for 5 times then how to write the code?how many times the inner loop rotates total.
70. Below code which loops are nested?

```
for(i=0;i<10;i++){
        for(j=0;j<5;j++){

        }
        for(k=0;k<7;k++){

        }
}
```

71. WAP to print prime numbers in between 50 to 100.
72. WAP to count how many prime numbers in between 50 to 100.
73. WAP to print the first 15 prime nos start from 50.
74. WAP to check if it is prime or not?
75. WAP to print prime numbers in between 50 to 100.
76. WAP to print prime numbers in between 50 to 100 and count it.
77. WAP to print the first 15 prime numbers starting from 50.
78. WAP to print prime numbers in between n1 to n2.
79. WAP to print prime numbers in between n1 and n2 and count it.
80. WAP to print first C prime numbers starting from n.
81. WAP to check if it is palindrome or not?
82. WAP to print palindrome numbers in between 50 to 100.
83. WAP to print palindrome numbers in between 50 to 100 and count it.
84. WAP to print the first 15 palindrome numbers starting from 50.
85. WAP to print palindrome numbers in between n1 to n2.
86. WAP to print palindrome numbers in between n1 and n2 and count it.
87. WAP to print first C palindrome numbers starting from n.
88. WAP to check if it is perfect or not?
89. WAP to print perfect numbers in between 50 to 100.
90. WAP to print perfect numbers in between 50 to 100 and count it.
91. WAP to print the first 15 perfect numbers starting from 50.
92. WAP to print perfect numbers in between n1 to n2.
93. WAP to print perfect numbers in between n1 and n2 and count it.
94. WAP to print first C perfect numbers starting from n.
95. WAP to check if it is armstrong or not?
96. WAP to print armstrong numbers in between 50 to 100.
97. WAP to print armstrong numbers in between 50 to 100 and count it.
98. WAP to print the first 15 armstrong numbers starting from 50.
99. WAP to print armstrong numbers in between n1 to n2.

100. WAP to print armstrong numbers in between n1 and n2 and count it.
101. WAP to print first C armstrong numbers starting from n.