C Output Problem

	Very Very Important Questions
1.	**Write a program to find whether the given number is an Armstrong number or not?** *[ICML(AP)-2019]*
2.	**Write a program to reverse a string.** *[ICML(AP)-2019]*
3.	**Write a program to sort a list of element using the insertion sort algorithm**. *[ICML(AP)-2019]*
4.	**What are the properties of the command line arguments in C/C++?** *[Uttara Bank(AP)-2019]*
5.	**Write a function void changeCaseAndReverese(Char *s) using c programming language that will print the characters in the string S in reverse order and will also change the uppercase letters to lowercase and lowercase letters to uppercase. For example if you call changeCaseAndReverese ("Hello There"), it will print EREHt OLLEh.** *[Uttara Bank(AP)-2019]*
6.	**C program to find sum of following series:** *[Uttara Bank(AP)-2019]* 1+1/2+1/3+1/4+……1/n.
7.	**Write a pseudocode that takes in one positive number only and returns the factor for that number.** *[Combined(SO-IT/ICT)-2019]*
8.	**How many bits have to change to convert int A to intB.?** Sample A=31 and B=14. *[Basic Bank(AM)-2019]*
9.	Difference between getch () and getche (). What is file pointer in c? *[Basic Bank(AM)-2019]*
10.	**Write code to test a sorting algorithm of array?** *[Combined(AME)-2019]*
11.	**Write a program in c to find the sum of following series.** *[Competition Commition(P)-2019]* $1^2-2^2+5^2-.......+n^2$
12.	**A prime number is a number that is evenly divided by only 1 and itself.Write a program to your favourite language to print the first 100 prime numbers.** *[Competition Commition(P)-2019]*
13.	**A program sorts an array of integer. Write down the code that tests the sorting algorithm of written in a program.** *[HBFC&KB(AP)-2018]*
14.	**Write a program to find out the number of occurence of a digit in a number. Explanation if input value n and selection value is d.** *[DBBL-2018]*
15.	**Write a program to evaluate the series :** *[DBBL-2018]* 1*3 + 2*5 + 3*7 + …. + n*(2n+1)
16.	**Difference between call by value and call by reference with example.** *[Pally Sa.-2018]*
17.	**Write a program using any programming language that reads five numbers from keyboard and display the smaller , larger and average of those numbers.** *BDBL-2017]*
17.	**Write a program to sort an array and find max, min value.** *[IBBL-2017]*
18.	**Write a program to calculate GPA, avg, and total marks.** *[IBBL-2017]*
19.	**Write an algorithm that sort an array, also test code for sorting test.** *[IBBL-2017]*

20.	Using examples explain data types used in C language. *[Multi. Ministry-2017]*
21.	Write a program to read the coordinates of the end points of a line and to find its length. Use a structured variable name 'Line' to store the relevant information about its end points. *[Multi. Ministry-2017]*
22.	Write a program in C to calculate the sum of the series: 1+(1+2)+(1+2+3)+….+(1+2+…+n). *[Multi. Ministry-2017]*
23.	Explain in details the different forms of looping statement in C language. *[Multi. Ministry-2017]*
24.	Write a program in C with recursive function to compute the value X^n where n is a positive integer and x has real value. *[Multi. Ministry-2017]*
25.	What is algorithm? Write down the algorithm to find out the second highest and second lowest element in an n-element array. *[ICT Ministry-2017]*
26.	Draw a flowchart of ax2+bx+c=0 through c/c++ program. *[Engineering college lecturer - 2017]*
27.	What is the difference between while and do while loop? *[ICT Ministry-2014]*

1. **What will be output of following c code?**

```c
#include<stdio.h>
extern int x;
int main(){
    do{
        do{
            printf("%o",x);
        }
        while(!-2);
    }
    while(0);
    return 0;
}
int x=8;
```

Output: 10
Explanation:

   ☞ Here variable x is extern type. So it will search the definition of variable x. which is present at the end of the code. So value of variable x =8

   ☞ There are two do-while loops in the above code. AS we know do-while executes at least one time even that condition is false. So program control will reach at printf statement at it will print octal number 10 which is equal to decimal number 8.

   ☞ Note: %o is used to print the number in octal format.

   ☞ In inner do- while loop while condition is ! -2 = 0

☞ In C zero means false. Hence program control will come out of the inner do-while loop. In outer do-while loop while condition is 0. That is again false. So program control will also come out of the outer do-while loop.

2. **What will be output of following c code?**

```c
#include<stdio.h>
int main(){
    int i=2,j=2;
    while(i+1?--i:j++)
        printf("%d",i);
    return 0;
}
```

Output: 1
Explanation:

☞ Consider the while loop condition: i + 1 ? -- i : ++j
☞ **In first iteration:** i + 1 = 3 (True).So ternary operator will return --i i.e. 1 .In c 1 means true so while condition is true. Hence printf statement will print 1
☞ **In second iteration:** i+ 1 = 2 (True). So ternary operator will return --i i.e. 0
☞ In c zero means false so while condition is false. Hence program control will come out of the while loop.

3. **What will be output of following c code?**

```c
#include<stdio.h>
int main(){
    int x=011,i;
    for(i=0;i<x;i+=3){
        printf("Start ");
        continue;
        printf("End");
    }
    return 0;
}
```

Output: Start Start Start
Explanation:

☞ 011 is octal number. Its equivalent decimal value is 9.So, x = 9

First iteration: i = 0

i < x i.e. 0 < 9 i.e. if loop condition is true.Hence printf statement will print: Start
Due to continue keyword program control will come at the beginning of the for loop and value of variable i will be:
i += 3
i = i + 3 = 3

Second iteration:

  i = 3

  i < x i.e. 3 < 9 i.e. if loop condition is true.

  Hence printf statement will print: Start

  Due to continue keyword program control will come at the beginning of the for loop and value of variable i will be:

  i += 3

  i = i + 3 = 6

Third iteration:

  i = 3

  i < x i.e. 6 < 9 i.e. if loop condition is true.

  Hence printf statement will print: Start

  Due to continue keyword program control will come at the beginning of the for loop and value of variable i will be:

  i += 3

  i = i + 3 = 9

Fourth iteration:

  i = 6

  i < x i.e. 9 < 9 i.e. if loop condition is false.

  Hence program control will come out of the for loop.

4. **What will be output of following c code?**

```
#include<stdio.h>
int main(){
    int i,j;
    i=j=2,3;
    while(--i&&j++)
        printf("%d %d",i,j);
    return 0;
}
```

Output: 13
Explanation:

Initial value of variable: i = 2; j = 2

Consider the while condition: --i && j++

In first iteration:

  --i && j++

  = 1 && 2 //In c any non-zero number represents true.

  = 1 (True)

  So while loop condition is true. Hence printf function will print value of i = 1 and j = 3 (Due to post increment operator)

In second iteration:

--i && j++

= 0 && 3 //In c zero represents false

= 0 //False

So while loop condition is false. Hence program control will come out of the for loop.

5. What will be output of following c code?

```c
#include<stdio.h>
int main(){
    static int i;
    for(++i;++i;++i) {
        printf("%d ",i);
        if(i==4) break;
    }
    return 0;
}
```

Output: 24

Explanation:

☞ Default value of static int variable in c is zero. So, initial value of variable i = 0

First iteration:

For loop starts value: ++i i.e. i = 0 + 1 = 1

For loop condition: ++i i.e. i = 1 + 1 = 2 i.e. loop condition is true. Hence printf statement will print 2

Loop incrimination: ++I i.e. i = 2 + 1 =3

Second iteration:

For loop condition: ++i i.e. i = 3 + 1 = 4 i.e. loop condition is true. Hence printf statement will print 4. Since is equal to for so if condition is also true. But due to break keyword program control will come out of the for loop.

6. What will be output of following c code?

```c
#include<stdio.h>
int main(){
    int i=1;
    for(i=0;i=-1;i=1) {
        printf("%d ",i);
        if(i!=1) break;
    }
    return 0;
}
```

Output: -1

Explanation:

☞ Initial value of variable i is 1.

First iteration:

For loop initial value: i = 0

For loop condition: i = -1 . Since -1 is non- zero number. So loop condition true. Hence printf function will print value of variable i i.e. -1

Since variable i is not equal to 1. So, if condition is true. Due to break keyword program control will come out of the for loop.

7. **What will be output of following c code?** *[Pally Sanchaya Bank (AP)-2018]*

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

Output: Infinite loop
Explanation:

☞ In for loop each part is optional.

8. **What will be output of following c code?** *[Pally Sanchaya Bank (AP)-2018]*

```c
int main()
{
    inti=2,j=2;
    while(i?--i:j++)
    printf("%d",i);
    return 0;
}
```
Output: 1

9. **What will be output of following c code?** *[Pally Sanchaya Bank (P)-2018] [EPB (P)-2018]*

int main(){	int main(){
char str[120] = "Digital Bangladesh";	int i;
int n;	for(i=0;i<5;i++){
n=strlen(str);	if(i==3)
str[4]='\0';	continue;
printf("%s",str);	printf("%d\n",i);
return 0;	}
}	return 0;

	}
Output: Digi Print 0 index to null	**Output:** 0 1 2 4 When index i=3 then it continue loop not print .

10. What will be output of following c code?

```c
#include<stdio.h>
int main(){
    printf("%d", 10?0?5:1:12);
}
```

Output: 1

Explanation:

printf ("%d", 10? 0? 5 :1:12);
That means printf ("%d", 10? (0? 5 :1): 12);
if 10 is true, then return (0? 5:1)
else return 12
Now, (0? 5 :1), if 0 is true, then return 5, else return 1.
Since non-zero number is true as if condition and zero is false
So, 1 will be printed.

11. What will be output of following c code?

```c
#include<stdio.h>
int r();
int main(){
    for(r();r();r()) {
        printf("%d ",r());
    }
    return 0;
}
int r(){
    int static num=7;
    return num--;
}
```

Output: 5 2
Explanation:

First iteration:
     Loop initial value: r() = 7
     Loop condition: r() = 6
     Since condition is true so printf function will print r() i.e. 5
     Loop incrimination: r() = 4
Second iteration:
     Loop condition: r() = 3
     Since condition is true so printf function will print r() i.e. 2
     Loop incrimination: r() = 1
Third iteration:
     Loop condition: r() = 0
     Since condition is false so program control will come out of the for loop.

12. What will be output of following c code?

```c
#include<stdio.h>
#define p(a,b) a##b
#define call(x) #x
int main(){
    do{
        int i=15,j=3;
        printf("%d",p(i-+,+j));
    }
    while(*(call(625)+3));
    return 0;
}
```

Output: 11
Explanation:

First iteration:
     p(i-+,+j)
     =i-++j   // a##b
     =i - ++j
     =15 – 4
     = 11
     While condition is : *(call(625)+ 3)
     = *("625" + 3)
     Note: # preprocessor operator convert the operand into the string.
     =*(It will return the memory address of character '\0')
     = '\0'
     = 0 //ASCII value of character null character

Since loop condition is false so program control will come out of the for loop.

13. What will be output of following c code?

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

Output: 6
Explanation:
   ☞ It possible for loop without any body.

14. What will be output of following c code?

```
#include<stdio.h>
int i=40;
extern int i;
int main(){
    do{
        printf("%d",i++);
    }
    while(5,4,3,2,1,0);
    return 0;
}
```

Output: 40
Explanation:

   ☞ Initial value of variable i is 40
First iteration:
      printf function will print i++ i.e. 40
      do - while condition is : (5,4,3,2,1,0)
      Here comma is behaving as operator and it will return 0. So while condition is false
      hence program control will come out of the for loop.

15. What will be output of following c code?

```
#include<stdio.h>
char _x_(int,...);
int main(){
    char (*p)(int,...)=&_x_;
    for(;(*p)(0,1,2,3,4); )
```

```
        printf("%d",!+2);
        return 0;
    }
    char _x_(int a,...){
        static i=-1;
        return i+++a;
    }
```

Output: 0
Explanation:

☞ In c three continuous dot represents variable number of arguments. p is the pointer to the function _x_

First iteration of for loop:

Initial value: Nothing // In c it is optional
Loop condition: (*p)(0,1,2,3,4)
= *(&_x_)(0,1,2,3,4) // p = &_x_
= _x_(0,1,2,3,4)   //* and & always cancel to each other
= return i+++a
= return i+ ++a
= return -1 + 1
= 0

Since condition is false. But printf function will print 0. It is bug of c language.

16. **What will be output of following c code?**

```
#include<stdio.h>
int main(){
    int i;
    for(i=10;i<=15;i++){
        while(i){
            do{
                printf("%d ",1);
                if(i>>1)
                        continue;
            }while(0);
            break;
        }
    }
    return 0;
}
```

Output: 1 1 1 1 1 1
Explanation:

☞   For loop will execute six times.
☞   **Note:** continue keyword in do-while loop bring the program its while condition (while(0)) which is always false.

17. How many times this loop will execute?

```
#include<stdio.h>
int main(){
    char c=125;
    do
        printf("%d ",c);
    while(c++);
    return 0;
}
```

Output: Finite times
Explanation:

If we will increment the char variable c it will increment as:
126,127,-128,-127,126 . . . . , 3, 2, 1, 0
When variable c = 0 then loop will terminate.

18. What will be output of following c code?

```
#include<stdio.h>
int main(){
    int x=123;
    int i={
        printf("c" "++")
    };
    for(x=0;x<=i;x++){
        printf("%x ",x);
    }
    return 0;
}
```

Output: c++0 1 2 3
Explanation:

First printf function will print: c++ and return 3 to variable i.
For loop will execute three time and printf function will print 0, 1, 2 respectively.

19. What will be the output of the following program?

```c
#include<stdio.h>
int main()
{
    int a=2,b=2;
    while(a+3?--a:b++)
      printf("%d %d/n",a,b);
    return 0;
}
```
A. 1 2 **B.** 0 2 **C.** infinite loop **D.** 2 2

Answer: A
Explanation:
   First iteration: a+3=5 which is true, --a=1 hence while(1), a=1 b=2 gets printed.
   Next iteration: a+3=1+3=4 which is true, hence --a=0, while(0) and loop gets terminated.

20. **What will be the output of the following program?**

```c
#include<stdio.h>
int main()
{
    int x=022,i;
    for(i=0;i<x;i+=5){
        printf("geek ");
        continue;
        printf("bix");
    }
    return 0;
}
```

   A. geek geek geek bix   **B.** geekbix   **C.** geek geek bi   **D.** geek geek geek geek

Answer: D
Explanation:
   022 is octal number. Its equivalent decimal value is 18. So, x = 18
   Program control reaches for loop
   first iteration: i<18
   geek gets printed due to continue statement program again goes to for loop and i increses by 5,
   second iteration: i=5<18
   geek gets printed and code works so on.

21. **What will be the output of the following program?**

```c
#include<stdio.h>
```

```
int main()
{
    int i,j;
    i=j=2,4;
    while(--i&&j++)
        printf("%d %d",i,j);
    return 0;
}
```
A. 2 4   **B.** 1 4   **C.** 1 3   **D.** 1 5

Answer: C
Explanation:

consider expression: i=j=2,4 assignment operator has higher priority than comma operator hence i and j gets value 2

22. What will be the output of the following program?

```
#include<stdio.h>
int main()
{
    int i,j;
    i=j=2,4;
    while(--i++&&j++)
        printf("%d %d",i,j);
    return 0;
}
```
A. infinite loop   **B.** 2 3   **C.** Error   **D.** 1 3

Answer: C
Explanation:
    --i++ results into --(2) which flashes lvalue required error.
    Note that postfix increament has higher priority than prefix decreament

23. What will be the output of the following program?

```
#include<stdio.h>
int main()
{
    static int j;
    for(++j;++j;j++) {
        printf("%d ",j);
        if(j==4)
        break;
    }
    return 0;
```

```
}
```

     A. 3 4   **B.** Garbage Garbage   **C.** 2 3   **D.** 2 4

Answer: D

24. What will be the output of the following program?

```
#include<stdio.h>
int main()
{
    int i=1;
    for(i=0;i=-1;i=1) {
        printf("%d ",i);
        if(i!=1) break;
    }
    return 0;
}
```
     A. infinite loop   **B.** 0   **C.** -1   **D.** Compile time error

Answer: C
Explanation:

   Initial value of i=1
First iteration:
For loop initial value: i = 0
For loop condition: i = -1 . Since -1 is non- zero number. So loop condition true. Hence printf function will print value of variable i i.e. -1
Since variable i is not equal to 1. So, condition is true. Due to break keyword program control will come out of the for loop.

25. What will be the output of the following program?

```
#include<stdio.h>
int main()
{
    int i=1;
    while(i++<=1)
    while(i++<=2)
    printf("%d",i);
    return 0;
}
```
     A. infinite loop   **B.** 3   **C.** 3 6   **D.** Error
Answer: B

26. What will be the output of the following program?

```
#include<stdio.h>
```

```
    int main()
    {
        int i=1;
        while(i++<=1);
        while(i++<=2);
        printf("i=%d",i);
        system("pause");
        return 0;
    }
```
A. 1   **B.** 2   **C.** 3   **D.** 4

Answer: D
Explanation:

Note that every loop is terminated but it will check for condition twice

27. **What will be the output of the following program?**

```
    #include<stdio.h>
    int main()
    {
        int i=2;
        do;
        while(i++<=2);
        printf("%d",i);
        return 0;
    }
```

A. 3   **B.** 4   **C.** 5   **D.** Error

Answer: B

28. **What is the final values of a and c in the following C statement ?**
    (initialize value a=2,c=1) [Combined(AP)-2018]

```
    c=c? a=0:2;
```
a) a=0,c=0   b) a=2,c=2
c) a=2,c=2   d) a=1,c=2

Explanation:
Steps: 2? condition is true
a=0;
c=a;
c=0;
Answer: a