GATE

Computer Science & Information Technology

C Programming

Control Flow Statements

DPP: 1

Q1
```
#include <stdio.h>
int main(void)
{
    int i = 2, j = 3, k = 4;
    if (i < j ? 1 : 0)
        printf("GATE");
    else
        printf("Wallah2023");
    return 0;
}
```
The output of the program is _____.

(A) GATE (B) 2023WALLAH
(C) TEWALLAH (D) EWALLAH

Q2
```
#include <stdio.h>
void main( )
{
 int a, b, c, d;
  a = 2; b = –1; c = 3; d = –4;
  if(a = b – c – d)
      printf("%d%d%d", a++, b--, c++);
  else
      printf("%d%d%d", c--, ++ a, ++b);
}
```
The output is _____.

(A) 1 -2 4
(B) 3 1 0
(C) 2 1 -3
(D) 3 3 0

Q3
```
#include <stdio.h>
int main(void)
 {
  int a = 3 > 2 ? 0 ? 0 : 1 : 5;
   if(a = = a – 1)
      printf("GATE 2023");
   else
      printf("GATE WALLAH");
   return 0;
 }
```
The output of the program is _____.

(A) GATE 2023 (B) GATE WALLAH
(C) Compiler error (D) Garbage value

Q4
```
#include <stdio.h>
void main( )
{
   int a;
     a = printf("GATE Wallah 2023");
   if(a%4 = = 0)
     a = a + 5;
   else
     a = a – 5;
   printf("%d", a++);
}
```
The value of a at the end of the program is ___.

Q5
```
#include <stdio.h>
void main( )
{
   int i, j, k;
     j = 4;
     k = 0;
   i = j < k ? k : j --;
   if (j < i)
      j = j + k – 1;
   if (j = = i)
      j = j – i;
   else
      j = j + -- k,
   printf ("%d", j + k – i);
}
```
The output is ___.

Q6 Consider the following program:

```
#include<stdio.h>
int main()
{
int a=19, b=20;
if(a++<b--) printf("%d",a+++--b);
else printf("%d", ++a+--b);
return 0;
}
```

The output is _____.

Q7

```
#include<stdio.h>
void main()
{
int a=0;
printf("%d", a);
if(a=2){
printf("Hi");
printf("%d",a);
}else{
printf("Bye");
}
printf("%d", a);
}
```

The output string is:

(A) 0Hi22 (B) 0Hi20

(C) 0Bye0 (D) 0Hi00

Q8

```
#include<stdio.h>
void main()
{
int a=0, b=0;
a=(a=4)||(b=1);
if(a&&b) printf("CProgramming");
else printf("PhysicsWalah");
printf("%d",b);
}
```

The output is-

(A) CProgramming0 (B) CProgramming1

(C) PhysicsWalah0 (D) PhysicsWalah1

GATE

Answer Key

Q1	(A)	Q5	-4~-4
Q2	(B)	Q6	38~38
Q3	(B)	Q7	(A)
Q4	22~22	Q8	(C)

Hints & Solutions

Q1 Text Solution:

i < j ? 1 : 0

In the above expression i value is less than j value, hence it will return 1.

So, it will print GATE.

Q2 Text Solution:

a = – 1 – 3 + 4

a = 0

a 2 0 –

Assignment operator assigns and returns the value

b + + b: – 1 0 –,

a + + a: 0 1 –,

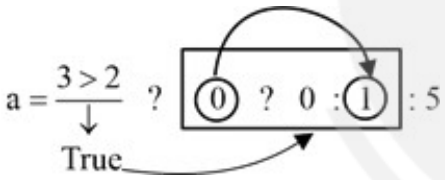
c c– – : 3 2 –

⇓

Post decrement (It will print 3, then update to 2)

Output: 3 1 0.

Q3 Text Solution:



a = 1

Assignment operator assigns the value and returns it.

if (a = a –

Output: GATE WALLAH

Q4 Text Solution:

GATE Wallah 2023

↓

a = 16

printf returns the number of characters successfully printed

16 % 4 = 0 → True

↓

a = a + 5

a 16 21 22

Hence the final value of a is 22.

Q5 Text Solution:

i j k

4 4 0 – 1

3 2 1

3 < 4

j = 3 + 0 – 1 = 2

2 ! = 4

j = j – 1

= 2 – 1

j = 1

printed value = j + k – i

= 1 – 1 – 4

= –4

Q6 Text Solution:

If(19<20) → Condition is true. After the condition is evaluated, a is incremented to 20 and b is decremented to 19.

Now, printf("%d",a+++--b); is evaluated. b is decremented to 18. So, (20+18) i.e. 38 is printed. After that, a is incremented to 21.

Hence, output is 38.

Q7 Text Solution:

```
void main()
    {
    int a=0;
    printf("%d", a); // 0 is printed
    if(a=2){//Assignment operator assigns and returns the assigned value; So 2 is assigned to a and 2 is returned.  Any non-zero value is considered true.
      printf("Hi");//"Hi" is printed
      printf("%d",a);//Since a contains 2, 2 is printed.
    }else{
      printf("Bye");
    }
```

printf("%d", a); //Since a contains 2, 2 is printed
}
Output: 0Hi22

Q8 **Text Solution:**
a = 0. b=0;
a=(a=4)||(b=1) //Assignment operator assigns and returns the assigned value. Here, short-circuiting will be applied. Since the logical operator is OR, if the first part is true, second part is not evaluated at all. Hence, b=0, a=1.
if(a && b)//The condition evaluates to 1 && 0 i.e. 0. Hence, else part is evaluated.
Output: PhysicsWalah0