# CSE/IT

## Subject: Programming in C

### Topic: Decision control statements -1

DPP-01

**[NAT]**

**1.**
```
#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 _____.

**[MCQ]**

**2.**
```
#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

**[MCQ]**

**3.**
```
#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

**[NAT]**

**4.**
```
#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 ___.

**[NAT]**

**5.**
```
#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 ___.

**[NAT]**

**6.** 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 _____.

**[MCQ]**

**7.**

```
#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

**[MCQ]**

**8.**

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

The output is-

(a) CProgramming0
(b) CProgramming1
(c) PankajSharma0
(d) PankajSharma1

# Answer Key

1. **(GATE)**
2. **(b)**
3. **(b)**
4. **(22)**
5. **(–4)**
6. **(38)**
7. **(a)**
8. **(c)**

# Hints and solutions

**1. (GATE)**

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.

**2. (c)**

a = – 1 – 3 + 4

a = 0

a | ~~2~~ 0 |

Assignment operator assigns and returns the value

b | ++b : –~~1~~ 0 | ,

a | ++a : ~~0~~ 1 | ,

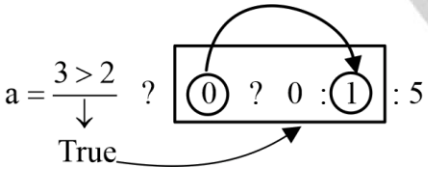
c | c– – : ~~3~~ 2 |

⇓

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

Output: 3 1 0

**3. (b)**




a = 1

Assignment operator assigns the value and returns it

if (a = a – 1)

⇓

Condition: false

Output: GATE WALLAH

**4. (GATE Wallah 202321)**

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.

**5. (–4)**

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

**6. (38)**

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.

**7. (a)**

```
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

**8. (c)**

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: PankajSharma0