CSE/IT · Batch: Hinglish

Subject: Programming in C
Topic: if else

DPP-01

[NAT]

1.
```c
#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.
```c
#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.
```c
#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.
```c
#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.
```c
#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:
```c
#include<stdio.h>
int main()
{
int a=19, b=20;
```

```c
if(a++<b--) printf("%d",a+++--b);
else printf("%d", ++a+--b);
return 0;
}
```
The output is _____.

[MCQ]

7.
```c
#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.
```c
#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 | $\cancel{2}$ 0 |

   Assignment operator assigns and returns the value

   b | $++b: -\cancel{1}\ 0$ | ,

   a | $++a: \cancel{0}\ 1$ | ,

   c | $c--: \cancel{3}\ 2$ |

   ⇓

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

   Output: 3 1 0

3. **(b)**

   $a = \dfrac{3 > 2}{\underset{\text{True}}{\downarrow}}\ ?\ \boxed{\text{⓪}\ ?\ 0 :\ ①}\ : 5$

   a = 1

   Assignment operator assigns the value and returns it

   if $\underbrace{(a = a - 1)}_{0}$

   ⇓

   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 | $\cancel{16}\ \cancel{21}\ 22$ |

   Hence the final value of a is 22.

5. **(–4)**

   $\begin{array}{ccc} i & j & k \\ 4 & \cancel{4} & \cancel{0} & -1 \\ & \cancel{3} & \cancel{2} & 1 \end{array}$

   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
}
```
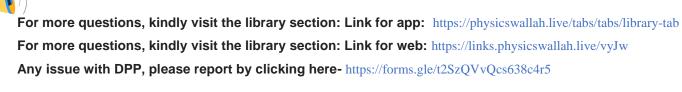Output: 0Hi22

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