GATE

Computer Science & Information Technology

C Programming

Control Flow Statement

DPP: 2

Q1
```
#include<stdio.h>
 int main(){
  int x = 0, y = 0, a;
  a = x && ++y;
  printf("%d %d", x, y);
  return 0;
 }
```
what is the output of above program?

(A) 11 (B) 10

(C) 01 (D) 00

Q2
```
#include<stdio.h>
 int main()
{
        int x=3, y=4, z=4;
        printf("%d", (z>=y>=x?100:200));
        return 0 ;
 }
```
what is the output of above program?

(A) 100 (B) 200

(C) 0 (D) 1

Q3
```
#include <stdio.h>
int main(){ int a = 80;
switch(-12%45+36/9/2*16+60)
{
   case 80: a = a+10;
   case 5: a++;
   default : a = a>>2;
 }
 printf ('%d", a) ;
 }
```
what is the output of above program?

(A) 20 (B) 21

(C) 22 (D) 23

Q4 Question

```
int main()
{
      int a =50;
      switch(a)
      {
         default: a=45;
          case 49: a++;
         case 50: a--;
         case 51: a =a+1;
   }
 printf("%d",a);
 }
```
what is the output of the above program?

(A) 51 (B) 45

(C) 50 (D) Error

Q5 Consider the following program
```
#include<stdio.h>
int main()
{
    int i= -1;
    for (; ++i; i++)
    {
       printf("I am a good Student");
    }
    return 0 ;
 }
```
what is the output of the above program?

(A) 0 (B) 1

(C) Infinite (D) 2

Q6 consider below c program.
```
#include <stdio.h>
int main()
{
   int i=2+4%6+9/10;
   while (i<10)
   {
```

```
        printf("I am good student");
        i++;
    }
    return 0 ;
    }
```

The number of times printf statement executed is _____

Q7 Consider the following C program

```
#include <stdio.h>
int main(){
float sum = 0.0, j = 1.0, i = 2.0;
while (i/j > 0.0625){
            j= j+j;
           sum = sum + i/j;
         printf("%f\n", sum);
 }
 return 0;
 }
```

what is the output of the above program?

Q8

```
#include <stdio.h>
int main() {
   int i,j;
   for(i =1;i<=3;i++){
       for(j=1;j<=20;j++){
          printf("I am a good student");
          if(i==2) break;
       }
   }
  return 0 ;
}
```

The number of times printf will be executed is_____.

Q9 cosider the c program given below.

```
#include<stdio.h>
  void main () {
  int sum =0;
  for (int j =1; j<=20; j++)
  for (int i = 1; i <= 10; i++) {
   if (i == j)
   continue;
   sum++;
   }
   printf("%d\n", sum);
  }
```

The output of the program is _____

(A) 200 (B) 190

(C) 180 (D) 20

Q10 Consider the function func shown below:

```
#include <stdio.h>
int main() {
  int num=128;
int count = 0;
while (num/2) {
 count++;
 num>>= 1;
  }
  printf ("%d", count);
}
```

The value printed is _____.

Q11 Consider the function func shown below:

```
#include <stdio.h>
int main()
{
int a=7, b=8;
while(++b & a-- )
{
printf("Hello!");
}
return 0;
}
```

The number of times the printf() executed is _____.

Q12 Consider the function func shown below:

```
int main() {
int a=1, b=2;
do
{
while(b++)
{
b=b-a;
a=a+b;
}
}
while(a++<2);
```

```
printf("%d\t%d", a, b);
return 0;
}
```

The output is____

(A) 3 0 (B) 4 2

(C) 3 2 (D) 4 1

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Answer Key

Q1	(D)	Q7	1.9375
Q2	(B)	Q8	41
Q3	(C)	Q9	(B)
Q4	(C)	Q10	7
Q5	(A)	Q11	7
Q6	4	Q12	(D)

Hints & Solutions

Q1 Text Solution:

x' = 0, y = 0, a

a = 0 && ++y will not execute logical → short circuit code.

Logic short

Q2 Text Solution:

x = 3, y = 4, z = 4

conditional operator ≥ left associative operator

(r ≥ 4 > = 3)

1 ≥ 3 False

Q3 Text Solution:

a = 80

–12 % 45 + 36 / 9 / 2 * 16 + 60

= –12 + 4/2 * 16 +60

= –12 + 32 + 60

= 20 + 60 = 80

Case 80 : a = 90

Case 5; a = 91

a = 91 >> 2

$\lfloor 91/2^2 \rfloor = \lfloor 91/4 \rfloor$

$= 22$

Q4 Text Solution:

int a = 50

switch(a)

switch(50)

case 50 will match

hence option c is correct.

Q5 Text Solution:

for loop

i = –1

for (; ++i; i++)

No initiolization

++i = i

$i\boxed{-1 \to 0}$

condition is false

No – times –.0 time

Q6 Text Solution:

i = 2 + 4%6 + /10

= 2 + 4 + 0 = 6

$i\boxed{6}$

6 < 10 ...(1)

7 < 10 ....(2)

8 < 10 ...(3)

9 < 10 ...(4)

11 < 10 ×

Number of times print execute = 4

Q7 Text Solution:

i/j > 0.0625

(1) 2/1 > 0.0625

j = 2

sum = 0+2/2 = 1

(2) 2/2 > 0.0625

j = 4

sum 2/4 + 1 = 1.5

(3) 2/4 > 0.0625

j = 8

sum = 1.5 + 0.25 = 1.75

(4) 2/8 > 0.0625

j = 16

sum = 1.75 +0.125 = 1.875

(5) 2/16 > 0.0625

0.125

j = 32

sum = 1.875

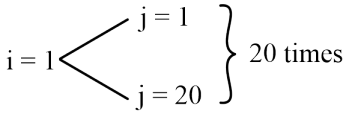
0.0625

1.9375

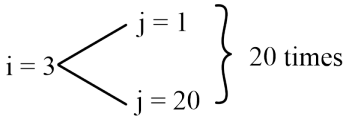
(6) 2/32 > 0.0625 false

Final value of sum = 1.9375

Q8 Text Solution:



i = 3 —— j = 1 print



41

times printf execute

Q9 Text Solution:

for loop

$$\begin{array}{ll} & j = 1 \\ & j = 2 \\ i = 1 & \vdots \\ & j = 10 \\ & j = 1 \\ & j = 2 \\ i = 2 & \vdots \\ & j = 10 \end{array}$$

i = 3

:

:

i = 20

200 times 20 ×10 = 200

10 case i = 1, j = 1

i = 2, j = 2

i = 3, j = 3

200 – 10 = 190

Q10 Text Solution:

Num =128

Count = 0

While (Condition)	count	num
128/2 = 64	1	64
64/2 = 32	2	32
32/2 = 16	3	16
16/2 = 8	4	8
8/2 = 4	5	4
4/2 = 8	6	2

2/2 = 1 7 1

1/2 = 0 condition is false

Q11 Text Solution:

a = 7 , b = 8

a = 6 , b = 9 ....(1)

a = 5 , b = 10 ....(2)

a = 4, b = 11 .....(2)

00111
01001
00001 Non

00110
01010 Non –

01011 .....(3)
00101 Non

a = 3 , b = 12
01100.....(4)
00100 Non

a = 2 , b = 13
01101.....(5)
00011 Non

a = 1 , b = 14
01110.....(6)
00010 Non zero

a = 0 , b = 15
01111.....(7)
00001 Non zero

a = 0 , b = 16

Q12 Text Solution:

a = 1, b = ~~2~~ 3 ~~2~~ 3

while (2)

b =3 – 1 = 2

a = 1 + 2 = 3

While (2)

b = 3 – 3 = 0

a = 3 + 0 = 3

while (0)

after loop

3 < 2 false

come at of loop

post increment

a = 4

b = 1

Correction option 'd'.