

# Subject : Programming in C

## Chapter : Functions & storage classes

### Topic : Function

DPP-01

**[NAT]**

1. Consider the following program:

```
#include<stdio.h>

int f2(int a){
    int b=0;
    b=b+5;
    return a*b;
}

int f1(int a){
    int b;
    b=f2(a);
    return a*b;
}

int main(){
    int i, a=5, b=4;
    for(i=0;i<2;i++){
        b=f1(a)-f2(a);
        printf("%d\t", b);
    }
    return 0;
}
```

The sum of the printed values is \_\_\_\_\_

**[MCQ]**

2. Consider the following program:

```
#include<stdio.h>

void print(int n){
    for(n++;n++;n++)
        printf("GATE Wallah");
}

int main(){
    void print();
    void print();
```

print(-9);

return 0;

}

Which of the following is correct?

- (a) Compilation error
- (b) "GATE Wallah" will be printed infinite number of times.
- (c) "GATE Wallah" will be printed 5 times.
- (d) "GATE Wallah" will be printed 4 times.

**[MCQ]**

3. Consider the following program.

```
#include<stdio.h>

void f(int n){
    switch(n<<1+n){
        default: printf("Sresth");
        case 4: printf("Parakram");
        case 3: printf("2024");
        break;
        case 2: printf("2025");
    }
}

int main(){
    f(1);
    return 0;
}
```

The output is-

- (a) Parakram2024
- (b) SresthParakram2024
- (c) Parakram
- (d) Sresth2025

**[MCQ]**

4. Consider the following program:

```
#include<stdio.h>
void f(){
int x;
x=10<5?printf("%d",
printf("GATE")):printf("");printf("2024");printf("%d",
printf("Wallah Parakram")));
}
int main(){
f();
return 0;
}
```

The output is-

- (a) GATE2024
- (b) Wallah Parakram15
- (c) GATEWallah Parakram4
- (d) GATE4

**[NAT]**

5. Consider the following program:

```
#include<stdio.h>
int f(int b, int a){
int x;
x=a<<b;
b=x*a--;
return a+b-x;
}
```

```
int main(){
printf("%d", f(1,2));
return 0;
}
```

The value printed is \_\_\_\_\_.

**[MCQ]**

6. Consider the following program:

```
#include <stdio.h>
int r(int num){
return --num;
}
int main(){
int n=4;
for (r(n);r(n++);r(--n))
printf("%d\t",r(--n));
return 0;
}
```

The output is-

- (a) 1 2 3
- (b) 1 2 3 4
- (c) 3 2 1
- (d) 4 3 2 1

## Answer Key

- |           |        |
|-----------|--------|
| 1. (-292) | 4. (b) |
| 2. (d)    | 5. (5) |
| 3. (a)    | 6. (c) |



## Hints and Solutions

### 1. (-292)

For i=0:

f1(5):

Line 1: int b;

Line 2: b=f2(5); //b=25

Line 3: return 5\*25; //return 125 to main().

f2(5):

Line 1: int b=0;

Line 2: b=b+5; //b=5

Line 3: return 5\*5; //return 25 to f1. Go to Line 3 of f1(5)

f2(5):

Line 1: int b=0;

Line 2: b=b+5; //b=5

Line 3: return 5\*5; //return 25 to main().

b in main() is updated to:  $b = b - f1(a) + f2(a) = 4 - 125 + 25 = -96$ .

For i=1:

f1(5):

Line 1: int b;

Line 2: b=f2(5); //b=25

Line 3: return 5\*25; //return 125 to main().

f2(5):

Line 1: int b=0;

Line 2: b=b+5; //b=5

Line 3: return 5\*5; //return 25 to f1. Go to Line 3 of f1(5)

f2(5):

Line 1: int b=0;

Line 2: b=b+5; //b=5

Line 3: return 5\*5; //return 25 to main().

b in main() is updated to:  $b = b - f1(a) + f2(a) = -96 - 125 + 25 = -196$ .

Output is: -96 -196

Sum= -292

### 2. (d)

```
int main(){
```

```
    void print();//No compilation error
```

```
    void print();//No compilation error
```

```
    print(-9); //print(-9) is called.
```

```
    return 0;
```

```
}
```

```
print(-9){ //n=9
```

```
for(n++; n++ ;n++)
```

```
    -9 -8 ->printf() is executed -7
```

```
    -6 ->printf() is executed -5
```

```
    -4 ->printf() is executed -3
```

```
    -2 ->printf() is executed -1
```

```
    0 -> Loop terminates
```

```
}
```

“GATE Wallah” will be printed four times.

### 3. (a)

```
f(1):
```

```
n=1;
```

```
switch(n<<1+n){
```

```
//switch(1<<2) i.e switch(4)
```

```
    default: printf("Sresth");
```

```
    case 4: printf("Parakram");
```

```
    //case 4 is executed.
```

//since no break is there case 3 will also be executed.

```
    case 3: printf("2024");
```

```
    break;
```

```
    case 2: printf("2025");
```

```
}
```

Output: Parakram2024

4. (b)

f():

```
x = 10 < 5 ? printf("%d", printf("GATE"));
```

```
printf(""); printf("2024");
```

```
printf("%d", printf("Wallah Parakram"));
```

10 < 5 is FALSE. So, printf("") is evaluated. It prints nothing and hence returns 0.

0 means FALSE. So, printf("%d", printf("Wallah Parakram")) is evaluated.

Output: Wallah Parakram15

5. (5)

f(1,2):

b=1, a=2;

x=a < b; // x=2 < 1 = 4

b=x\*a--; // b=4\*2=8. After this, a is decremented to 1.

return a+b-x; // return 1+8-4 i.e. return 5.

main():

printf("%d", f(1,2)); // 5 is printed.

Output: 5

6. (c)

r(4)=3. // Initialization

r(n++) or r(4)=3 -> TRUE // Condition check  
n is incremented to 5.

printf("%d\t", r(--n)); // printf("%d\t", r(4))

// 3 is printed.

r(--n) or r(3) is called.

r(n++) or r(3)=2 -> TRUE // Condition check  
n is incremented to 4.

printf("%d\t", r(--n)); // printf("%d\t", r(3))

// 2 is printed.

r(--n) or r(2) is called.

r(n++) or r(2)=1 -> TRUE // Condition check  
n is incremented to 3.

printf("%d\t", r(--n)); // printf("%d\t", r(2))

// 1 is printed.

r(--n) or r(0) is called.

r(n++) or r(1)=0 -> FALSE // Loop terminates.

Output: 3 2 1



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For more questions, kindly visit the library section: Link for web: <https://smart.link/sdfez8ejd80if>



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