CS & IT ENGINEERING

Programming in C

Functions and Storage Classes
DPP-01 Discussion

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Q.1

Consider the following program:

```c
#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 _____

[NAT]

$a \boxed{5}$

$b \boxed{4 \; -96}$

5 (above int f2(int a))

b = 5

25 (b=b+5)

i = 0

5 (int f1(int a))

f2(5)

int b;

b = f2(a); 25

return a*b; 125

$f_1 \; a$

$\boxed{5}$

$f_1 \; b \;\boxed{25}$

$b\text{-} = f1(a) - f2(a);$

$125 - 25$

$b\text{-} = = 100$

$b = b - 100$

$\Rightarrow b = 4 - 100 = \boxed{-96}$

$-96 + (-196)$

$\Rightarrow \boxed{-292}$

$i = 1$

$b\text{-} = f1(a) - f2(a)$

$f1(5)$

$125 - 25$

$b\text{-} = 100$

$b = b - 100;$

$= -96 - 100$

$\boxed{b = -196}$

$\boxed{-196}$

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;
}
```

Handwritten annotations:
- $-8 \to$ True ✓
- $-2, -9$
- $-1, -6 \to$ True ✓
- $-9, -8 \leftarrow -7, -5, -4 \to$ True ✓
- $-2 \to$ True ✓
- No problem
- declaration
- (D)

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.

Consider the following program.

[MCQ]

```c
#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

Handwritten annotations:

$n \boxed{1}$

$+$
$<<$

$n << 1+n$

$1+1$

$n << 2$

$\Rightarrow n \times 2^2$

$\Rightarrow 1 \times 2^2$

$\Rightarrow \textcircled{4}$

$\textcircled{A}$

Q.4 Consider the following program: **[MCQ]**

```c
#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

Handwritten annotations:

$x = pf("\%d", pf("wallah Parakram"))$ (15) exp3

$x = pf("\%d", 15)$

$x = \underbrace{pf("")}_{exp1} ? \underbrace{pf("2024"): pf("\%d", pf("wallah Parakram"))}_{exp2}$

$x = 10<5 ? \underbrace{pf("\%d", pf("GATE"))}_{exp1} \xleftarrow{\quad} \underbrace{\quad}_{exp2} : \underbrace{pf("") ? pf("2024"): pf("\%d", pf("Wallah Parakram"))}_{exp3}$

False

Wallah Parakram15

Q.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 _____.

Handwritten annotations:

b = 18, a = 21, x = 4
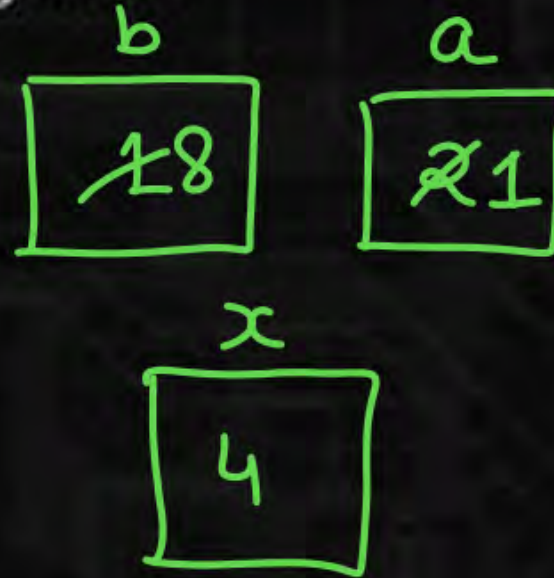
$2 << 1$
$\Rightarrow 2 \times 2^1 \Rightarrow 4$

$b = x \times a--$

$1 + 8 - 4 = 5$

(i) use a
(ii) $a = a-1$

$b = x \times a$
$a = a-1$

$b = 4 \times 2 = 8$

f(1,2) → 5

The value printed is 5

Q.6 Consider the following program: [MCQ]

```
#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. 123

B. 1234

C. 321

D. 4321

$for\left(\underset{3}{r(n)}; r(n++); r(--n) \right)$ [MCQ]
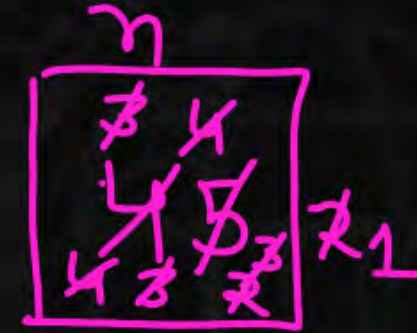
$\{$

$printf("\%d\t", \overset{r(4)}{r(--n)});$

3

$r(4) \Rightarrow 3$
$r(4) \Rightarrow 3$
$r(3) \Rightarrow 2$
$r(2) \Rightarrow 1$

O/P. 3 2 1

(C) 321