Quiz :

```
int f(int n)
{
    static int i=1
    if (n>=5)
        return n;
    n = n+i;
    i++;
    return f(n);
}
```

ans (7)

i++
↓
n = 2+2 = 4
i++
↓
3
n = 4+3 = 7 → 7>5
so return (7).

Here 'i' doesn't change.

(2)

```
void foo(int n, int sum)
{
    int k=0, j=0;
    if(n==0) return;
    k = n%10;  → gets last digit
    j = n/10;  → Remove the last digit from n
    sum = sum+k;  → Add last digit to sum.
    foo(j, sum);  → Recursively call foo with the reduced number.
    printf("%d", k);
}
int main()
{
    int a=2048, sum=0;
    foo(a, sum);
    printf("%d\n", sum);
}
```

OP: 2, 0, 4, 8, 0.

Question-3 :

What is return value of f(p,p) if the value of p is initialised to 5 before the call? Note the first parameter is passed by reference, whereas the second parameter is passed by value.

```
int f(int &x, int c)
{
    c = c - 1;
    if (c == 0)
        return 1;
    x = x + 1;
    return f(x, c) * x;
}
```

Question-4 :

```
int fun(int n)
{
    int x = 1, k;
    if (n == 1)
        return x;
    for (k = 1; k < n; ++k)
        x = x + fun(k) * fun(n - k);
    return x;
}
```

Qus-5

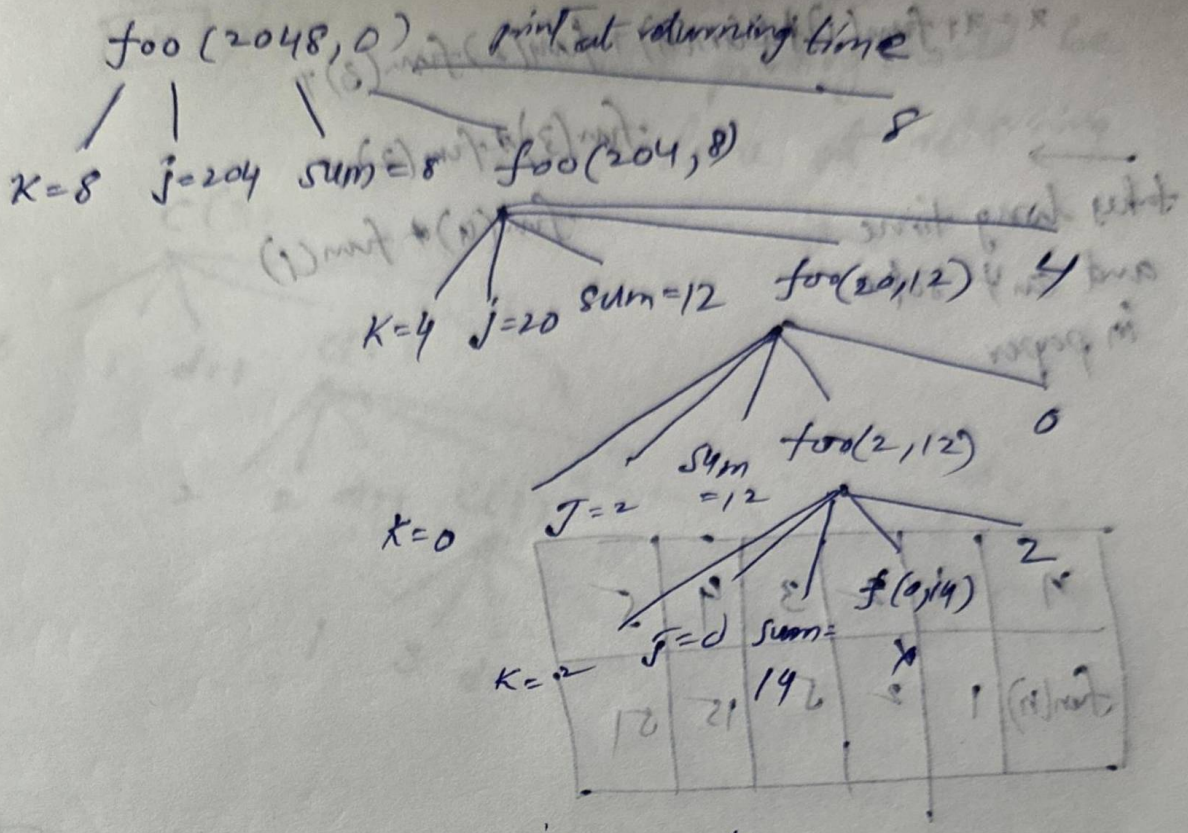
```
void count(int n)
{
    static int d=1;
    printf("%d", n);
    printf("%d", d);
    d++;
    if (n>1)
        count(n-1);
    printf("%d", d);
}

void main()
{
    count(3);
}
```

Sol 3 1 2 2 1 3 4 4 4

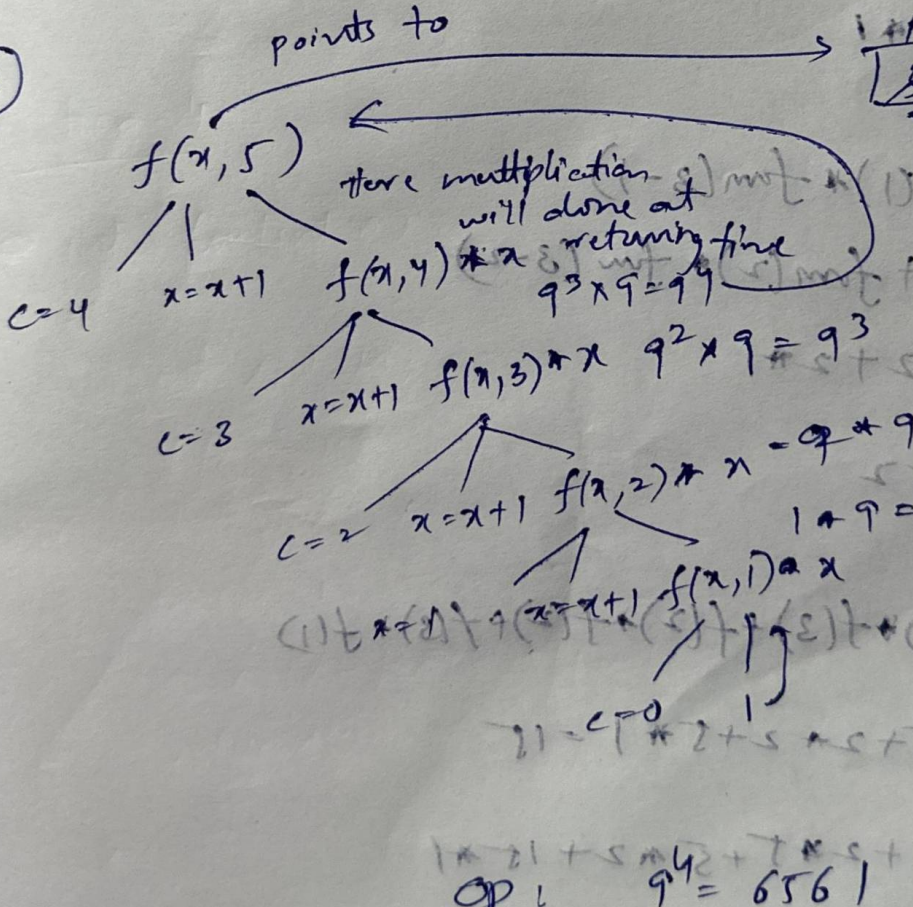
Solutions:

(2)



OP: 2048 0 ← sum in main function printed.

(3)

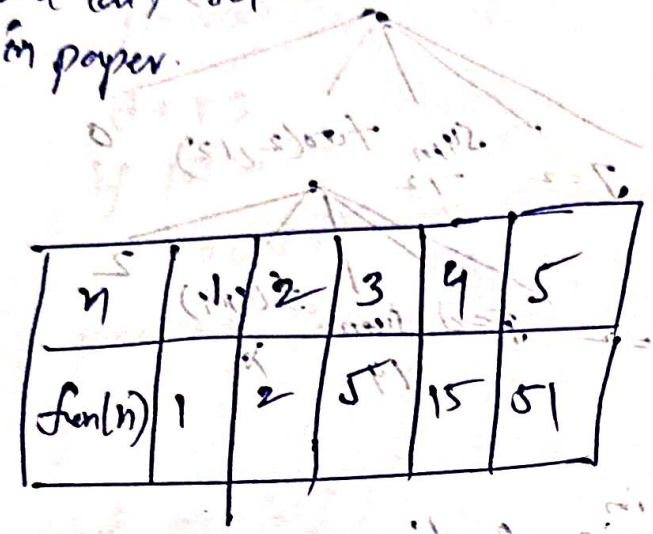


OP: $q^4 = 6561$

(4) fun(5)

$x = x + fun(1) * fun(4) + fun(2) * fun(3) +$
$fun(3) * fun(2) +$
$fun(4) * fun(1)$

→ takes long time and can't solve in paper.



n	1	2	3	4	5
fun(n)	1	2	5	15	51

$fun(2) = x + fun(1) * fun(2-1)$

$= 1 + 1 * 1$

$= 2$

$fun(3) = x + fun(1) * fun(3-1) + fun(2) * fun(3-2)$

$= 1 + 1 * 2 + 2 * 1$

$= 1 + 2 + 2$

$= 5$

$fun(4) = 1 + f(1) * f(3) + f(2) * f(2) + f(3) * f(1)$

$= 1 + 1 * 5 + 2 * 2 + 5 * 1 = 15$

$fun(5) = 1 + 1 * 15 + 2 * 5 + 5 * 2 + 15 * 1$

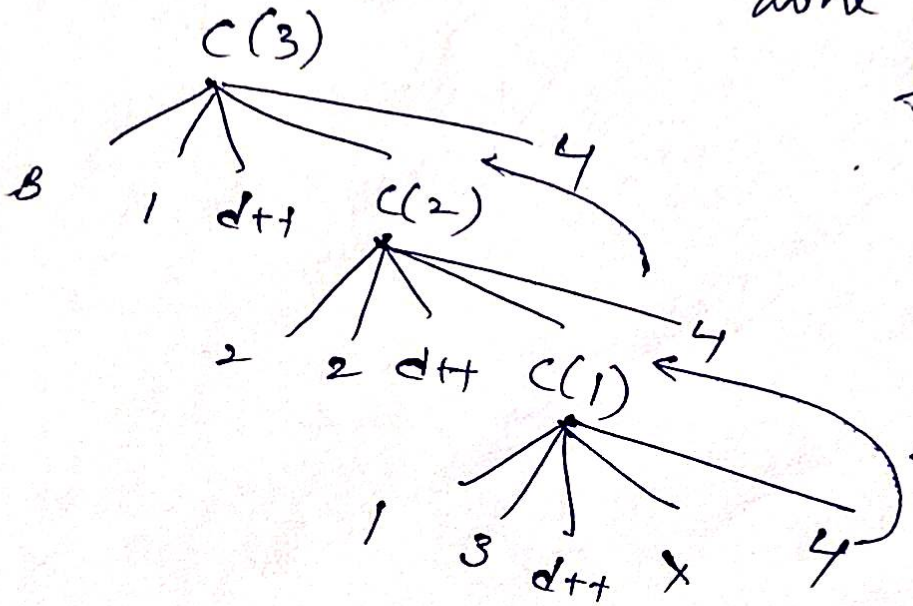
$= 1 + 15 + 10 + 10 + 15$

$= 51$

Prog-5

→ When a function is called before print statement then first function has to execute and printing should be done at returning time.

d
[4] ~~3~~ 4



output: 3, 1, 2, 2, 1, 3, 4, 4, 4.