Parameter Passing Example from a Previous Exam

void main()

{

int aM[] = {10, 20, 30}

int k = 2;

sub(aM[k], k);

print ('main', k, aM[0], aM[1], aM[2]);

void sub(int x, int y)

{

y -= 1;

x += 3;

k -= 1;

printf('sub', x, y);

}

}

Trace and show the output produced by the code using the following parameter transmission schemes:

a. by value

b. by true reference

c. by copy-restore reference

d. by name

|  |  |  |
| --- | --- | --- |
|  | **Problem a. by value** | **Problem b. by true ref** |
| main | aM 10 20 30  k ~~2~~ 1 | aM 10 20 30  k 2 |
| sub | X ~~30~~ 33  y ~~2~~ 1 | X 30  Y 2 |
| Output: | Sub  sub 33 1  main main 1 10 20 30 | Sub  Sub 29 5  Main main 2 10 20 29 |

|  |  |  |
| --- | --- | --- |
|  | **Problem c. by copy-restore** | **Problem d. by name** |
| main | aM 10 20 30  k 2 | aM 10 20 30  k 2 |
| sub | X 30  Y 2 | X 30  Y 2 |
| Output: | Sub  Sub 29 5  main main 2 10 20 30 | sub  main |