Assignment 1

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1 PROBLEM

(Q 22) Consider the following C fProgram.

```c
#include <stdio.h>
int main(){
    int a[4][5] = {{1,2,3,4,5},
                   {6,7,8,9,10},
                   {11,12,13,14,15},
                   {16,17,18,19,20}};
    printf("%d", *(*(a+**a+2) +3));
    return(0);
}
```

```c
int main(){
    int a[4][5] = { {1,2,3,4,5},
                    {6,7,8,9,10},
                    {11,12,13,14,15},
                    {16,17,18,19,20}};
    int i, j;
    for(i = 0; i < 4; i++)
    {
        for(j = 0; j < 5; j++)
        {
            printf("a[%d][%d]=%d\n", i, j, *(
                *(a + i) + j) );
        }
        printf("\n\n");
    }
    printf("final output is a[%d][%d]=%d\n", **a
        +2,3,*(*(a+**a+2) +3));
    return(0);
}
```

The output of the program is?

2 SOLUTION

Answer : The output of the program is-19
Explanation
Let consider that input **a** is a 2D matrix

$$a = \begin{bmatrix} 1 & 2 & 3 & 4 & 5 \\ 6 & 7 & 8 & 9 & 10 \\ 11 & 12 & 13 & 14 & 15 \\ 16 & 17 & 18 & 19 & 20 \end{bmatrix}$$

From the above matrix **a represents the index of the element in $a_{[0][0]}$ element i.e 1,

$$* (*(a + 1 + 2) + 3)) \qquad (2.0.1)$$

in above equation (*(a+3) +3) this represents the index of $a_{[3][3]}$ in the matrix a. Hence the Output will be $a_{[3][3]}$ Element of the matrix a i.e 19

```c
// C Code for printing output in form of array
#include <stdio.h>
```