

Question 4:

Code:

```
"""import numpy as np

A = np.array([[25, 30, 45, 60], [43, 44, 12, 32]])
B = np.array([[12, 21, 32], [42,34, 53], [78,19, 90], [93,37,89]])

def multiply(A:np.array, B:np.array):
    if np.shape(A)[1] != np.shape(B)[0]:
        return "The matrices are not able to be multiplied"

    C = np.zeros([np.shape(A)[0], np.shape(B)[1]])

    for i in range(np.shape(A)[0]):
        for j in range(np.shape(B)[1]):
            for k in range(np.shape(A)[1]):
                C[i][j] += A[i][k]*B[k][j]

    return C

C=np.matmul(A, B)
print(multiply(A,B))
print(multiply(B, A))

def test(A:np.array, B:np.array, C:np.array):
    if np.array_equal(C, multiply(A,B)):
        print("Both Matrices are the same")

D = np.array([[12, 32, 41], [43, 54, 12], [12, 32, 45]])
E = np.array([[1, 3, 4], [4, 2, 5], [9, 4, 12]])
F = np.matmul(D, E)

test(A, B, C)
test(D, E, F)

"""
```

Output of the code:

```
PS C:\Users\Lenovo\Downloads> & 'c:\Users\Lenovo\Downloads\libs\debugpy\adapter/../../debugpy\launcher' y'
[[10650.  4620. 11780.]
 [ 6276.  3811.  7636.]]
The matrices are not able to be multiplied
Both Matrices are the same
Both Matrices are the same
PS C:\Users\Lenovo\Downloads>
```