

# CS1112 Summer 2010

## Quiz 4

Print Name: \_\_\_\_\_

Problem 1	10 pts	
Problem 2	10 pts	
Problem 3	10 pts	

1. (a) What is the output when the following script is executed? Show work.

```
A = zeros(100,100);
for i=1:100
    for j=1:100
        A(i,j) = 2*i+j;
    end
end
fprintf('%10.1f\n',A(100,1))
for i=1:100
    for j=1:100
        A(i,j) = A(j,i);
    end
end
fprintf('%10.1f\n',A(100,1))
```

1. (b) Write a complete specification for the following function:

```
function B = f(A)
[m,n] = size(A);
for j=1:n-1
    B(:,j) = (A(:,j)+A(:,j+1))/2;
end
```

2. Write a function `z = ModifiedSum(A,p,q)` that takes a matrix `A` and integers `p` and `q` and returns the sum of all the entries in `A` that are neither in row `p` or column `q`. Assume that `A` has at least `p` rows and at least `q` columns. Thus, if `p = 2`, `q = 3`, and

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

then the value of `ModifiedSum(A,p,q)` would be  $1+2+4+9+10+12+13+14+16+17+18+20$ .

3. Complete the following function so that it performs as specified

```
function B = Update(A,f,g)
% A is an m-by-n matrix.
% f is a column m-vector.
% g is a row n-vector.
% B is an m-by-n matrix. The i-th row of B is obtained by subtracting
% f(i) times g from the i-th row of A.
```