

Instructions:

DO NOT TURN OVER THIS PAPER UNTIL INSTRUCTED TO DO SO

You are permitted one A4 sheet of notes. All other books, notes, devices must be placed under your table and must not be accessed.

Only MATLAB and the MyUni submission page for this practical are allowed to be running for the duration of this exam. All other programs must be shut down and you must not access any existing files.

Assessment is based on functionality. You can get partial marks for writing **functioning** code that correctly implements the subparts of a question (each of these is identified with the number of marks they are worth). You will NOT receive marks for code that 'almost works' or is 'close'.

Focus your time on getting as many parts working, as you can, rather than getting multiple parts 'almost' working. If none of the functionality is correctly implemented, the mark awarded will be 0.

Style is not being assessed in this exam.

Submission closes promptly at the end of your session. Only submissions made **before** the end of your session will be assessed. Submissions 'only a minute late' will not be assessed. You are encouraged to submit solutions as you complete them rather than waiting until the end. If you run out of time to submit, you will not receive marks for any work you haven't submitted.

I acknowledge the instructions given above and declare that the work submitted for this exam is entirely my own and I did not access any resources other than my A4 note sheet and MATLAB built in help.

Student Name & ID:

Signature:

Time left (if departing before end of session):

YOU MUST SIGN AND RETURN THIS EXAM BEFORE LEAVING

Q1 (30 marks total): basic user input/output, iteration (loop), vectors

Write a script that:

reads in n numbers from the user (10 marks) storing the numbers in a vector (10 marks). Then print the numbers from the ends inwards (last, first, second last, second, third last, third.....) (10 marks).

Sample Output:

How many numbers will you enter?: 5

Enter a number: 3

Enter a number: 5

Enter a number: 6

Enter a number: 4

Enter a number: 3

Your numbers from outside to middle are: 3 3 4 5 6

Submit your solution as q1.m

Q2 (20 marks): remembering state, conditions

Write a script that given a vector, called A, of n numbers, outputs the index of the first number divisible by 3.

Sample Output: Given A = [5, 4, 6, 7, 3]

The index first number divisible by 3 is: 3

Submit your solution as q2.m

Halfway there!

Q3 (20 marks): nested loop with 2D array

Given a 2D array, called A, of size n x m, write a script that will print out the 'fence' of A, using nested loops. MATLAB matrix shortcuts can not be used for this problem (ie A(x,:) can not be used to get an entire row)

(note: the 'fence' is the outer rows and columns)

Sample Output: Given A = [5, 4, 6, 7, 3 ; 1, 2, 3, 4, 5 ; 5, 6, 4, 2, 4 ; 4, 5, 3, 2, 1]

```
5 4 6 7 3
1      5
5      4
4 5 3 2 1
```

Submit your solution as q3.m

Q4 (30 marks):

extend question 3 to

- read the values of a 3 x 3 matrix from the user (15 marks)

Sample Output:

```
Enter the values for row 1, column 1: 5
Enter the values for row 1, column 2: 4
Enter the values for row 1, column 3: 6
Enter the values for row 2, column 1: 1
Enter the values for row 2, column 2: 2
Enter the values for row 2, column 3: 3
Enter the values for row 3, column 1: 6
Enter the values for row 3, column 2: 8
Enter the values for row 3, column 3: 9
```

```
5 4 6
1 3
6 8 9
```

- calculate the number of odd fence values instead of printing them. (15 marks)

Sample Output: Given A = [5, 4, 6, 7, 3 ; 1, 2, 3, 4, 5 ; 5, 6, 4, 2, 4 ; 4, 5, 3, 2, 1]

There are 9 odd values in the fence.

Submit your solution as q4.m

END OF EXAM