

**CITS2401 Computer Analysis and Visualisation
Semester 2, 2017**

Lab Test 1 marking instructions: Tuesday

Maximum marks: 40

Question 1:

Maximum marks: 10

Minimum marks: 0

For all tasks: Assign 2 marks for each correct task. There can be multiple ways to do the task. Normally, it is 1 or 2 lines solution. Look for the statements irrespective of matrix A to find the solution. Check the sample solution for details.

Question 2:

Maximum marks: 20

Minimum marks: 0

Testing Inputs and their outputs:

Test the function created with random input and output. Use same random values for testing all the submissions. Run the solution with random inputs and compare the results with submitted function. For vectors match randomly 3-4 values at different positions.

Random testing commands:

```
>> [Smax,Fmax,S,F] = sharkfish(55,75,900,2,0.1,0.2,5);  
Smax = 111.4921  
Fmax = 167.7840  
S = vector of 900 values  
F = vector of 900 values
```

```
>> [Smax,Fmax,S,F] = sharkfish(5,7,1657,2,0.15,0.15,6);  
Smax = 330.8213  
Fmax = 280.3476  
S = vector of 1657 values  
F = vector of 1657 values
```

Check the following tasks and allocate marks accordingly.

- Task 1: Assign 3 marks if first line of function is same as asked in lab test sheet. Check order and name of output and input variables, function name, file name, assigning final answers to correct outputs, etc.

Maximum: 3 marks

- Task 2: Assign 2 marks for each correct output. If the outputs are not assigned to the output variables and/or outputs are displayed from inside the function then deduct 2 marks extra.

Maximum: 8 marks. Minimum: 0 mark

If outputs of the function do not match then check the code otherwise it is expected that below mentioned tasks are achieved correctly.

- Task 3: Assign 2 marks each for coding the difference equations correctly. If equations are encoded correctly.
Maximum: 4 marks
- Task 4: Assign 1 mark each if all calculations from difference equations are stored in vector.
Maximum: 2 marks
- Task 5: Assign 3 marks if loop syntax is correct. Ignore errors inside the loop such as variable is not incremented correctly or condition is wrong, etc.
Maximum: 3 marks

Note: If maximum and minimum are not found correctly then no further deductions because marks are already deducted in Task 2 for that mistake.

Question 3:

Maximum marks: 10

Minimum marks: 0

Task 1: Assign 2 marks if first line of function is same as asked in lab test sheet. Check order and name of output and input variables, function name, file name, assigning final answers to correct outputs, using the inputs correctly etc.
Maximum: 2 marks

Task 2: Check input and output with random value of input and output. Use the same value of input for testing all submissions. If function works correctly then assign full marks else look for the following.

- Assign 2 marks if structure returned has an extra field "ave".
- Assign 2 marks if function has a correct loop to go through all element(s) of the input structure i.e. start and end of the loop.
- Assign 2 marks if function has correct methodology to retrieve field "marks" of the input structure for all elements of the structure.
- Assign 2 marks if function can find average of the marks in the field "marks" of the structure.

Note: If function creates its own structure array and does not use structure provided as input then it loses marks from Task 1, rest of the grading remains the same.

Testing inputs and outputs:

```
>> student = struct('first_name',{'Allan','Alex'},
'last_name',{'Norris','Collie'},'student_ID',{21111111,
22222222}, 'marks', {[70 50 30],[85 90 75 90]}))
```

```
>> struct2table(student)
```

first_name	last_name	student_ID	marks
'Allan'	'Norris'	21111111	[70,50,30]
'Alex'	'Collie'	22222222	[85,90,75,90]

```
>> student2 = average(student);
```

```
>> struct2table(student2)
```

first_name	last_name	student_ID	marks	ave
'Allan'	'Norris'	21111111	[70,50,30]	50
'Alex'	'Collie'	22222222	[85,90,75,90]	85