

KEY

GT Username(gburdell3): _____

Section: _____

- You will have 50 min for this exam
- This is a closed note/closed computer exam
- You are allowed one piece of paper for a crib sheet, front side only
- You are allowed to print off Appendix A to use as a reference during the exam

[illegible]

Question 1:

The following cell array is given:

```
cell = {[1 3 7 1]}, {'ilovecs'}, {[true true false true]}
```

Which of the following commands give `x = 'o'`

a.) `x = cell{2}(3)`

☒ b.) `x = cell(2){1}(3)`

c.) `x = cell(2){1}{3}`

☒ d.) `x = cell{2}{1}(3)`

e.) `x = cell(2)(1)(3)`

Question 2:

The following line is stored in a text file named `file.txt`

(the `*****` are not part of the file)

'CS 1371 is awesome.'

After the following code is run, what is the value of `line2`?

```
fh = fopen('file.txt', 'r')
```

```
line1 = fgetl(fh)
```

```
line2 = char(line1(line1>='a' & line1<='z') + ('A' - 'a'))
```

a.) 'CS 1371 IS AWESOME'

b.) 'cs 1371 is awesome'

☒ c.) 'ISAWESOME'

d.) 'CS IS AWESOME'

e.) 'cs 1371 IS AWESOME'

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Question 3:

The following code is run in MATLAB:

```
vec = [3, 4, 6, 10, 2]
out = [];
for i = 1:length(vec)
    if vec(i) > 3
        out = [out vec(i)];
    else
        out = [out 100];
    end
end
```

After the following lines of code are run, what is the value of out?

- A.) out = [100 10 6 4 100]
- B.) out = [4 6 10 100 100]
- C.) out = [100 100 4 6 10]
- D.) out = [100 4 6 10 100]
- E.) out = [3 100 100 100 2]

Question 4:

The following data is in 'PlayerStats.xls'

Player Name	Total Matches	Goals	Assists
Ronaldo	300	165	32
Messi	290	210	50
Beckham	585	99	10
Bale	91	80	26

The following code is run in Matlab:

```
[num,text,row] = xlsread('PlayerStats.xls');
A = class(num);
B = [row{2,2:4}];
[r,c] = size(row);
for i=1:r
    type = class(row{i,4});
    if strcmp(type,'double')
        row{i,4} = floor(row{i,4}/2);
    elseif strcmp(type,'char')
        row{i,4} = 'Goal Assists';
    end

    if(strcmp(row{i,1},'Ronaldo'))
        C=row(i,:);
    end
end
D = row(:,4);
```

After the above script is run, what are the values of the following variables? If a line produces an error, answer ERROR for that variable and assume the rest of the code is still run.

Enter the values as they would be entered into MATLAB :

- vectors and arrays in [square brackets]
- strings in 'single quotes'
- logicals as true or false
- cell arrays in {curly braces}
- if the answer is error write ERROR

A ==> 'double'

C ==> 'Ronaldo', 300, 165, 163

B ==> [300 165 33]

D ==> 'Goal Assists; 16; 25; 5; 133

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Solution to Question 5:

Function ruts(filename)

fh = fopen(filename) % Open file with read permissions

line = fgetl(fh) % Read in 1st line

num = 0 % Initialize counter for ruts

while ischar(line) % Loop until we reach end of file

[tok rest] = strtok(line, ':') % Separates string

~~numRuts = strcat(num, rest)~~

[numRuts rest] = strtok(rest, ':') % Isolates

num = num + str2num(numRuts) % Adds the ruts the number
to the counter as a string

line = fgetl(fh) % Gets the next line

end

fh2 = fopen('solution_q7.txt', 'w') % opens the new file
with write access

for i = 1 : num % writes line num times

fprintf(fh2, 'SHORTCUTS MAKE RUTS\n')

end

fclose(fh) % closes files

fclose(fh2)

end

Question 6:

Function Name: chartHelp

Function Inputs (2): -(char) the name of a file containing medical data
-(double) a number representing a patient ID

Function Outputs (1): -(double) the dose of medication to give to a patient

Function Description:

You work for a medical software company and are working on a program that will automatically calculate the dosage of a drug to administer to a given patient. Write a function called `chartHelp` that will take in a filename and output a number that represents the dosage of a medication that should be administered to a patient. The excel file will contain headers in the first row and patient names in the first column. Here is an example of what the excel sheet might look like:

Patient Name	Age	Room #	Weight	Allergies
Benjamin C.	23	G05	200	none
Kara J.	56	G15	150	peanuts
Belinda K.	47	G14	175	none
Joe B.	80	G19	130	tylenol

As you can see, the file may contain some extraneous data. Your goal is to use the given functions along with some code to calculate the dose given the two inputs.

Assume:

- All information given or needed will always exist in the file (for example, the patient's name and weight, etc.).
- The names of the patients will always be in the first column.
- There will always be a column named "Weight" exactly that contains the weights, however, it could be any column (except the first, of course).

You already have access to the following built-in functions that will help you solve this problem:

```
function dose=doseCalc(weight, gender)
```

%This function takes in the patient's weight as a double and the gender as a string (either 'female' or 'male') and calculates the drug dose for you.

```
function [name row]= findPatient(cellArr, patientID)
```

%This function takes in a cell array containing all of the medical data along with a patient ID (a double). This function will look up the patient ID in another database and return the name associated with that ID as a string. It will also return the row number (double) which contains that patient's name and other data.

```
function logicValue=patientGender(name)
```

%This function takes in a name (char) and returns a logical true or false: true if the given name is female, and false if the given name is male.

Solution to Question 6:

```
function dose = chartHelp(filename, patID)
[nums txt row] = xlsread(filename) % Reads in data
[name row] = findPatient(row, patID) % Finds the patient's name
logicVal = patientGender(name); % Determines the patient's
                                % gender based on the name
weightCol = find(strcmp(row(1,:), 'weight')); % Determines
weight = row(row, weightCol); % Gets the weight with column
if logicVal % The weights are in
    dose = doseCalc(weight, 'female') % calculates
else % the dose
    dose = doseCalc(weight, 'male') % based on the
                                % gender
end
```

