Problem X. Answer the following conceptual questions. If a question asks for specific code outputs, write your answers as you would type them into MATLAB (i.e. single quotes around strings, brackets around vectors, curly brackets around cells, etc.).

a. Explain the difference between concatenating two cell arrays with curly braces `{}` and brackets `[]`

b. The cell array `ca` is defined in the Command Window as follows :

```
>> ca = {1,{2,3,[4,5]},6,{7,{8}},'numbers'};
```

1. What is the value of the variable `num1` after the following line of code is run? If the code produces an error, write ERROR.

```
>> num1 = ca{2}{3}(1)
```

2. What is the value of the variable `num2` after the following line of code is run? If the code produces an error, write ERROR.

```
>> num2 = ca{2}(3){1}
```

3. What is the value of the variable `num3` after the following line of code is run? If the code produces an error, write ERROR.

```
>> num3 = ca{4}
```

4. What are the values of the variables `str1` and `str2` after the following lines of code are run? If the code produces an error, write ERROR, but assume the subsequent lines of code are still run.

```
>> ca(1) = 'integers'
>> str1 = ca{1}
>> str2 = ca(end)
```

c. Circle the functions below that can be used on cell arrays all the time.

5. `strcmp()`
6. `sort()`
7. `sum()`
8. `find()`

SOLUTIONS

Problem 1. Answer the following conceptual questions. If a question asks for specific code outputs, write your answers as you would type them into MATLAB (i.e. single quotes around strings, brackets around vectors, curly brackets around cells, etc.).

a. Explain the difference between concatenating two cell arrays with curly braces `{}` and brackets `[]`.

The brackets concatenate, the braces concatenate and wrap the combined cell array into another cell. The output of a concatenation with curly braces is a 1x1 cell.

b. The cell array `ca` is defined in the Command Window as follows (12 pts):

```
>> ca = {1,{2,3,[4,5]},6,{7,{8}},'numbers'};
```

1. What is the value of the variable `num1` after the following line of code is run? If the code produces an error, write ERROR.

```
>> num1 = ca{2}{3}(1)
```

`num1 = 4`

2. What is the value of the variable `num2` after the following line of code is run? If the code produces an error, write ERROR.

```
>> num2 = ca{2}(3){1}
```

ERROR

3. What is the value of the variable `num3` after the following line of code is run? If the code produces an error, write ERROR.

```
>> num3 = ca{4}
```

`num3 = {7,{8}}`

4. What are the values of the variables `str1` and `str2` after the following lines of code are run? If the code produces an error, write ERROR, but assume the remaining lines of code are still run.

```
>> ca(1) = 'integers'
>> str1 = ca{1}
>> str2 = ca(end)
```

ERROR

`str1 = 1`

```
str2 = {'numbers'}
```

c. Circle the functions below that can be used on cell arrays all the time.

Sort would only work if the contents of the cell were type char

5. `strcmp()`
6. `sort()`
7. `sum()`
8. `find()`