2. Assume that the code shown below has been executed:

begin code
```
>> A = [ 9, 0, 6, 8, 3, 0];
```
end code

Write the output that the following commands will produce. Do not worry about the exact format of the output. If the result produces a MATLAB error, write "ERROR."

(a) `>> A(3)`

ans = 6 /

(b) `>> A(3) >= 0`

ans = 1 /

(c) `>> A([1,3,5])`

ans = 9 6 3 /

(d) `>> A([2,4,6])`

ans = 0 8 0 /

(e) `>> A([1,3,5]) / 3 + 1`

ans = 4 3 2 /

(f) `>> A([1,3,5]) >= 6`

ans = 1 1 0 /

(g) `>> A([1,3,5]) .* A([2,4,6])`

ans = 0 48 0 /

(h) `>> A([1,3,5]) + A([2,4,6]) ./ A([2,4,6])`

ans = NaN 7 NaN /

1. What is the output when the following commands are typed in sequence from the MATLAB command window? Do not worry about the exact format of the output.

(a) `>> 4 * 2 / 2 ^ 2 + 1`

8 4

ans = 13

PEMDAS

(b) `>> 4 * 2 / 2 ^ (2 + 1)`

8 3

ans = 1

(c) `>> 6 * 2 / 2 < 2 + 1`

12/2 4 < 3

ans = 0

(d) `>> [ 6 2 ] / 2 < 2 + 1`

3 3

ans = 0 1

(e) `>> [ 6 2 ] / 2 .^ 2 + 1`

1.5 .5

.5 1.5

ans = 2.5 1.5

3. Assume that the 2D array:

$$A = \begin{bmatrix} 1 & 6 & -9 \\ 2 & 7 & 0 \\ 4 & 3 & 9 \\ -3 & -2 & -7 \end{bmatrix}$$

has been defined, i.e.

begin code
```
>> A = [1 6 -9; 2 7 0; 4 3 9; -3 -2 -7];
```
end code

Write the output that the following commands will produce. Do not worry about the exact format of the output. If the result produces a MATLAB error, write "ERROR."

(a) `>> A(4,3)`

ans = −7

(b) `>> A(3,4)`

ans = ERROR

(c) `>> A(9)`

ans = −9

(d) `>> A(:,3)'` -1/2

ans = −9 0 9 −7

(e) `>> A(1:2, 2:3)`

ans = 6 −9
7 0

(f) `>> A(1, end-1:end)`

ans = 6 −9

(g) `>> A([1,4],[1,3]) < 1`

ans = ERROR 0 1
1 1

4. Suppose that a row vector `r` of **unknown length** has been defined. Write matlab code (no more than 2 lines) that will reverse the order of the elements of the vector. For example,

   - if `r` was generated using the `matlab` code

     ```
     >> r = [ 1  -4  3];
     ```

     your code should return

     ```
     r =
         3  -4  1
     ```

begin code

```
rev = r(end:-1:1)
r=
```

(-1)

end code

+1

Ken:

please add 1 point to his exam score.

Thanks.

Roberto

5. Write, in the code box shown below a function `ReplaceChar`, which will replace **all** occurrences of one character in a string by another character.

   The function `ReplaceChar` should have three input arguments:

   - the input string,
   - the character to be replaced,
   - the replacing character,

   and one output argument:

   - the modified string.

   Below is an example of how `ReplaceChar` should work when it is used in the command window:

```
>> st1 = ReplaceChar('this is a test','t','T')
st1 =
        This is a TesT
```

begin code

```
FUNCTION [MOD_STR] = ReplaceChar (IN_STR, CHAR_REP, NEW_CHAR)
a = FINDSTR (char_rep, IN_STR) ;
IN_STR(a) = NEW_CHAR ;
MOD_STR = IN_STR ;
```

end code

6. Let A, C, D, E, and F be defined as in the following MATLAB script.

begin code

```
>> clear
>> A = {'Golden',{'Bears'},[3,1;4,2]};
>> C.f = {7};
>> D.f = 88;
>> E = [C D];
>> F = {[12 5]  A  E};
```

end code

Write the output that the following commands will produce. Do not worry about the exact format of the output. If the result produces a MATLAB error, write "ERROR."

(a) `>> size(A{1})`

ans = 6 -0.5

(b) `>> size(A{2})`

ans = 1 X 1 ✓

(c) `>> A{2}{1} == 'e'`

ans = 0 -1

(d) `>> size(A(1:2))`

ans = ERROR -1

(e) `>> [A{2}{1} F{2}{1}]` 'Bears' A

ans = ERROR -1

(f) Write an expression that extracts the number 88 from the variable F. ✓

F{3}(2).f

10/10

7. Consider the following lines of code:

```
begin code

>> clear
>> schools(1).SchoolName = 'Cal';
>> schools(1).TeamName = 'Golden Bears';
>> schools(2).SchoolName = 'UCLA';
>> schools(2).TeamName = 'Bruins';
>> schools(3).SchoolName = 'Stanford';
>> schools(3).TeamName = 'Cardinal';
>> schools(4).SchoolName = 'USC';
>> schools(4).TeamName = 'Trojans';

end code
```

(a) What size is schools? 1 x 4 ✓

(b) What is the class of schools? STRUCT ✓

(c) How many fields does schools have? 2 ✓

Define B and C as

```
begin code

>> B = [schools.SchoolName];
>> C = {schools.TeamName};

end code
```

(d) What size is B? 1 x 18 ✓

(e) What size is C? 1 x 4 ✓

(f) What class is B? CHAR ✓

(g) What is the value of B(6:9)? LAST ✓

(h) What is the value of C{3}? 'Cardinal' ✓

(i) By direct assignment, add a field, named `Location`, to `schools`. The values should be character strings, using LosAngeles (for USC), Westwood (for UCLA), Berkeley (for Cal), and ShallowAlto (for Stanford). Show your code below.

```
>> SCHOOLS(1).LOCATION = 'BERKELEY';
>> SCHOOLS(2).LOCATION = 'WESTWOOD';
>> SCHOOLS(3).LOCATION = 'SHALLOWALTO';
>> SCHOOLS(4).LOCATION = 'LOSANGELES';
```

✓