School of Engineering
Chemical Engineering Department
Computer Applications in Chemical Engineering.

CHE-0965201-Tues | **Student Name:** Answer
2ed 2018/2019 | **Student ID:** _____
Quiz 2 - F1 | **Quiz Mark [10]:** _____
Time Limit: 10 Minutes | Date: **19/2/2019**

1. (2 points) Given the following matrix A

$$A = \begin{bmatrix} 2 & 9 & 8 \\ -5 & 8 & -3 \\ 3 & 7 & -2 \\ 10 & 7 & 4 \\ 11 & 3 & 3 \end{bmatrix}$$

Suppose this matrix in MATLAB, write down the MATLAB command that has been used for each the following cases:

1. To create a vector **v** consist of all elements in first column.

   v = A(:,1)

2. To create a variable **a** consisting of the element in second row and second column.

   a = A(2,2)

3. To create a matrix **B** consisting of all elements in first,third rows and the first, second columns.

   B = A([1,3],[1,2])

4. To create a matrix **C** consisting of all elements in first through third rows and the second through third columns.

   C = A(1:3,2:3)

2. (2 points) Use two different MATLAB command to create the vector (w) having a regular step of 0.15 starting at 2 and ending at 12.

   w = 2:0.15:12
   w = linspace(2,15,67)

$P = \frac{12-2}{0.15} + 1$

$P = 67,666$

3. (1 point) Create the vector v having 30 logarithmically spaced values starting at 10 and ending at 10000.

10 → 10^1 , 10000 → 10^4

v = logspace(1,4,30)

4. (5 points) Consider the following MATLAB command.
What is the output of each case ?

1. **>> A = [2 −4 10 13; 16 3 −7 18; 8 4 9 −25];**
>> x = size(A)
   - ○ x=4
   - ○ x=3
   - ● x= 3 4
   - ○ Error message.

2. **>> A = [2 −4 10 13; 16 3 −7 18; 8 4 9 −25];**
>> x = A(1:3, 2:3)
   - ○ 16 3 -7
     8 4 9
   - ● -4 10
     3 -7
     4 9
   - ○ 3 -7 18
     4 9 -25
   - ○ Error message.

3. **>> x = 4:1**
   - ○ x=4 3 2 1
   - ○ x=1 2 3 4
   - ○ x=4 1
   - ● x= Empty matrix 1-by-0.

4. **>> v = 0.1:0.1:20;**
>> n = length(v)
   - ● n=200
   - ○ n=191
   - ○ n=201
   - ○ Error message.

P = (20 − 0.1)/0.1 + 1

5. **>> w =linspace(5,8,4)**
   - ● w=5 6 7 8
   - ○ w=5 5.5 6 6.5 7
   - ○ w=5 6.5 7.5 8
   - ○ w= Empty matrix 1-by-0.

st = (8 − 5)/(4 − 1) = 3/3 = 1

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CHE-0965201-Tues	**Student Name:** Answer
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Quiz 2 - F2	**Quiz Mark [10]:**
Time Limit: 10 Minutes	Date: **19/2/2019**

1. (2 points) Given the following matrix A

$$B = \begin{bmatrix} -1 & 2 & 1 & -4 & -6 \\ 2 & 11 & 5 & 13 & 5 \\ 5 & 3 & 3 & 1 & -3 \end{bmatrix}$$

Suppose this matrix in MATLAB, write down the MATLAB command that has been used for each the following cases:

1. To create a vector **v** consist of all elements in second row.

```
v = B(2,:)
```

2. To create a variable **a** consisting of the element in first row and third column.

```
a = B(1,3)
```

3. To create a matrix **D** consisting of all elements in second,third rows and the third, fifth columns.

```
D = B([2,3],[3,5])
```

4. To create a matrix **C** consisting of all elements in first through second rows and the third through fifth columns.

```
C = B([1:2],3:5)
```

2. (2 points) Use two different MATLAB command to create the vector (w) having a regular 10 points starting at 2 and ending at 12. $St = \frac{12-2}{9} = 1.11$

```
w = linspace(2,12,10);
w = 2:1.11:12;
```

3. (1 point) Create the vector v having 25 logarithmically spaced values starting at 1 and ending at 1000. $10^0 = 1$, $1000 \rightarrow 10^3$

```
v = logspace(0,3,25);
```

4. (5 points) Consider the following MATLAB command. What is the output of each case ?

   1. `>> A = [2 −4 10 13; 16 3 −7 18; 8 4 9 −25];`
      `>> x = size(A)`
      - ○ x=4
      - ○ x=3
      - ● x= 3 4
      - ○ Error message.

   2. `>> A = [2 −4 10 13; 16 3 −7 18; 8 4 9 −25];`
      `>> x = A(5)`
      - ● 3
      - ○ 16
      - ○ Empty matrix
      - ○ Error message.

   3. `>> v = 0:0.1:20;`
      `>> n = length(v)`
      - ○ n=200
      - ○ n=191
      - ● n=201
      - ○ Error message.

   4. `>> w =linspace(5,9,5)`
      - ● w=5 6 7 8 9
      - ○ w=5 5.5 6 6.5 7 7.5
      - ○ w=5 6.5 7.5 8.5 9
      - ○ w= Empty matrix 1-by-0.

   5. `>> x = 1:5`
      - ○ x=5 4 3 2 1
      - ● x=1 2 3 4 5
      - ○ x=5 1
      - ○ x= Empty matrix 1-by-0.