MATLAB

ASSIGNMENT-1

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SUBJECT CODE- **18AIS101J**

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SUBMITTED BY:-

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B.TECH-AI SECTION

Q1. Find the factorial of five

```
f= factorial (5)

f =

   120
```

Q2.If x= [1,5,7,9,13,20,6,7,8], then

(a) Replace the first five elements of vector x with its maximum value

```
x = [1,5,7,9,13,20,6,7,8];

   x(1:5)=max(x)

x =

   20    20    20    20    20    20     6     7     8
```

(b) reshape it into a 3x3 matrix

```
x = [1,5,7,9,13,20,6,7,8]


x =


        1    5   7        9    13  20       6    7   8

y = reshape(x,[3,3]);

disp(y);

y =

        1    9   6

        5    13  7

        7    20  8
```

3. Generate the following row vector b=[1, 2, 3, 4, 5, . . 9,10], then transpose it to column vector

p =

1 2 3 4 5 6 7 8 9 10

q = p.'

q =

1
2
3
4
5
6
7
8
9
10

4. Display matrix a = [1 4; 8 3], find its,

a. transpose

a = [1 4; 8 3];

disp (a)

1 4

8 3

b= a.'

b = 1 8

4 3

b. inverse

```
i = inv(a)

i =

  -0.1034    0.1379

   0.2759   -0.0345
```

c. diagonal

```
d = diag(a)

d =

   1

   3
```

d. sum of each column and sum of matrix

```
x = [1 4; 8 3];

disp (x)

   1    4

   8    3
```

//For each column//

```
disp(sum(x))

    9     7
```

//For matrix//

```
disp(sum(x,'all'))

   16
```

5. If x=[2 8 5;9 7 1], b=[2 4 5] find:

```
   x=[2 8 5;9 7 1]
x =
   2    8    5
   9    7    1
```

a) Maximum and minimum of X

```
x = [2 8 5;9 7 1];

   maximum =max(max(x))
maximum =
   9
   minimum=min(min(x))
minimum =
   1
```

b) Median value over each row of X

```
   med=median(x,[2])
 med =
   5
   7
```

c) Add vector b as third row to x

```
b= [2 4 5];

>> G=[x;b]

G =

    2     8     5

    9     7     1

    2     4     5
```

6. If x=[2 6 12;15 6 3;10 11 1], then

a) Replace the first row elements of matrix x with its avg. value,

```
x=[2 6 12;15 6 3;10 11 1];

 A = mean(x);

>> disp(A)

    9.0000    7.6667    5.3333

 x(1,:)=A
```

```
x =
    9.0000    7.6667    5.3333
   15.0000    6.0000    3.0000
   10.0000   11.0000    1.0000
```

b) Reshape this matrix into row vector

```
Y = reshape(x,[1,9])

Y =

    9.0000   15.0000   10.0000    7.6667    6.0000   11.0000    5.3333    3.0000    1.0000
```

7.Generate the following row vector b=[5, 10, 15, 20 . . . . . 95, 100], then find the number of elements in this vector.

```
c = 5:5:100

c =

     5    10    15    20    25    30    35    40    45    50    55    60    65    70    75    80    85    90
95   100

X = numel(c)

X =

    20
```