Course Name: Information and Communication Technologies Lab Code: CEN1005		
LAB #1: Introduction to MATLAB and Octave: Command Line		
Department	**Registration Number/Name**	**Semester/Section**
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Objectives:

- **To have basic understanding to work in MATLAB environment.**
- **To implement some basic commands and functions in MATLAB.**
- **To have basic understanding to Octave: Command line.**

Lab Tasks:

Question 1
Create a vector
a. 'A' of even whole numbers between 31 and 75.

b. 'B' of odd whole numbers between 74 and 131.

Q1.m | Q2.m | Q3.m

```
%%M.Hamzah Iqbal
e=[32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74]
o=[75 77 79 81 83 85 87 89 91 93 95 97 99 101 103 105 107 109 111 113 115 117 119 121 123 125 127 129 131]
```

Command Window

```
>> Q1

e =

  Columns 1 through 21

    32    34    36    38    40    42    44    46    48    50    52    54    56    58    60    62    64    66    68    70    72

  Column 22

    74


o =

  Columns 1 through 21

    75    77    79    81    83    85    87    89    91    93    95    97    99   101   103   105   107   109   111   113   115

  Columns 22 through 29

   117   119   121   123   125   127   129   131
```

Question 2
Let x= [2 5 1 6];
a. `Add 16 to each element
b. Add 3 to the odd indexed element.
c. Compute the square root of each element.
d. Compute the square of each element.

Q1.m | Q2.m | Q3.m

```
%%M.Hamzah Iqbal
X=[2 5 1 6]

a=x+16

b=[5 5 4 6]

c=x.*0.2

d=x.^2
```

Command Window

```
>> Q2

X =

     2     5     1     6


a =

    19    18    22    24


b =

     5     5     4     6


c =

    0.6000    0.4000    1.2000    1.6000


d =

     9     4    36    64
```

Question 3
Let x = [3 2 6 8] and y = [4 1 3 5]
a. Add the sum of the elements of x to y
b. Raise each element of x to the power specified by the corresponding element of y.
c. Multiply each element in x by the corresponding element in y and store the result in 'z'.
d. Evaluate x*y' and interpret the result: The interpretation of this is that the row has been converted to a column which is also know as transpose of a matrix.

Q3.m

/MATLAB Drive/Q3.m

```
%%M.Hamzah Iqbal
x=[3 2 6 8]
y=[4 1 3 5]
s1=[3+2+6+8];
a=s1+y
b=[3.^4 2.^1 6.^3 8.^5]
z=x.*y
d=(x.*y)'
```

Command Window

```
>> Q3

x =

     3     2     6     8


y =

     4     1     3     5


a =

    23    20    22    24


b =

          81           2         216       32768


z =

    12     2    18    40


d =

    12
     2
    18
    40
```

Conclusion:

In this lab we learned how MATLAB can be used to solve simple math equations and how we can declare matrices. Then we performed calculations such as square, sum, square root, multiplication and addition of matrices. We are now able compute different calculations on matrices using MATLAB.MATLAB is an essential tool used by engineers to solve mathematical problems efficiently.