Assignment No.:03 (Part - A)

EX-1.To create a Function q_mean.m that will calculate the mean of an array of numbers.

EX-2 Find out the errors in following function

 >> Out= test1(12)

% function
function   res = test1(x, y)
res=sqrt(x.^2 + y.^2);

EX-3 The location of a point in a Cartesian plane can be expressed in either the rectangular coordinates(x,y) or the polar coordinates (r,θ).   The relationships among these two sets of coordinate are given by the following equations.

$$X = r \cos \theta$$
$$Y = r \sin \theta$$
$$r = \sqrt{X^2 + Y^2}$$
$$\theta = \tan^{-1} \frac{Y}{X}$$

Write two functions rec2polar and polar2rect that convert coordinates from rectangular to polar and vice versa, where the angle θ is expressed in degrees.

EX-4. Write a m-file that outputs a conversion table for Celsius and Fahrenheit temperatures. The input of the function should be two numbers Ti and Tf, specifying lower and upper range of the table in Celsius. The output should be a two column matrix- the first column showing the temperature in Celsius from Ti to Tf in the increments of 1 degree C and the second column showing the corresponding temperature in Fahrenheit.

Create a column vector C from Ti to Tf with command
C=[Ti:Tf]
 Calculate temperature in Fahrenheit using the formula
F=9/5 *C + 32 and Make the final matrix with the command [C F]

 5.Write a function that, given two positive integers N1 and N2, calculates their greatest common divisor. The greatest common divisor can be calculated easily by iteratively replacing the largest of the two numbers by the

difference of the two numbers until the smallest of the two numbers reaches zero. When the smallest number becomes zero, the other gives the greatest common divisor.

You will need to use a while loop and an if-else statement. The largest of two numbers can beobtained using the built-in function MAX(A,B). The smallest of two numbers can be obtainedusing the built-in function MIN(A,B).

Assignment No.:03 (Part - B)

Input and Output Functions, Graph, Sparse Matrix

1. **Find out the result**
- **fprintf('%d\n',123)   %display the number using as many character arequired.**
- **printf('%6d\n',123)   % display the number in a 6- character-wide field. By default the number is right justified in the field.**
- **fprintf('%6.4d\n',123)   % display the number in a 6- character-wide field using a minimum of 4-characters.**
- **fprintf('%-6.4d\n',123)   % display the number in a 6- character-wide field using a minimum 4-character. By default the number is left justified in the field.**
- **fprintf('%+6.4d\n',123)   % display the number in a 6- character-wide field using a minimum of 4-characters plus a sign character. By default the number is left justified in the field.**
- **fprintf('%f\n',123.4)**
- **fprintf('%8.2f\n',123.4)**
- **fprintf('%4.2f\n',123.4)**
- **fprintf('%10.2e\n',123.4)**
- **fprintf('%10.2E\n',123.4)**
- **fprintf('%c\n','s')**
- **fprintf('%s\n', 'string')**
- **fprintf('%8s\n', 'string')**
- **fprintf('%-8s\n', 'string')**

2.**Write fprintf command to print:**

X is 9.90 meters or 9900.000 mm
X is 8.80 meters or 8800.000 mm
X is 7.70 meters or 7700.000 mm

IF B = [8.8 7.7 ; ...

   8800 7700];

3. Write function named table to generate the square roots, square and cubes of all integers between 1 and 10 and present the data in table form with appropriate headings.

Output:

Table of square Roots, Square, and Cubes

Number	Square Root	Square	Cube
=====	==========	======	=====
1	1.0000	1	1
2	1.4142	4	8
3	1.7321	9	27
…	………….	-----	---

7. Make a m file with the following lines and execute the file at the prompt

```
x = 0:pi/100:2*pi;
y = sin(x);
y2 = sin(x- .25);
y3 = sin(x- .5);
plot(x,y,'k-' x,y2,'g--',x,y3,'r')
xlabel('x = 0:2\pi')
ylabel('Sine of x')
title('Plot of the Sine Function','FontSize',12)
```
The legend command provides an easy way to identify the individual plots.
```
Legend('sin(x)','sin(x-.25)','sin(x-.5)'
```

Enhanced Control of text string

\bf   -----------------Boldface
\it   ------------------Italics
_{xxxxxx}   ------------The characters inside are the subscripts.
^{xxxxx} -------------- The characters inside are the superscripts.