Question 1

To find the sum of first 'N' numbers that are divisible by 5 and not divisible by 5. The user has to accept the value of 'N' from the input device.

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%      Description :     Script to find sum of elements divisible by 5
%                       and sum of elements not divisible by 5 among
%                       first 'N' integers
%      Author      :     Prabodh C P, Dept of CSE, SIT
%      Date        :     07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


clear all;
clc;
totsum5=0;
totsum=0;
n=input('Enter number of terms');
fprintf('\nNo of terms is %d\n',n);
for i=1:n,
      %V(i) = input('Value');
      V(i)=i;
      if rem(V(i),5) == 0
            totsum5 = totsum5 + V(i);
      else
            totsum = totsum + V(i);
      end
end
for i=1:n,
      fprintf('%d\t',V(i));
end
fprintf('\nSum of elements divisible by 5 is %d\n',totsum5);
fprintf('\nSum of elements not divisible by 5 is %d\n',totsum);
```

Question 2

To accept the two matrices of order m * n randomly to perform the following operations:
To concatenate two matrices either row wise or column wise.
To display the position of all the even elements in a matrix.

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%     Description :     Script to rowwise and column wise concatenation
%                       of  two matrices and to display row number and
%                       column number of even elemets in a matrix
%     Author      :     Prabodh C P, Dept of CSE, SIT
%     Date        :     07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
clear all;
clc;
m=input('Enter no of rows');
n=input('Enter no of cols');

fprintf('\nEnter elements of Matrix 1\n');
for i=1:m,
    for j=1:n;
        A(i,j)=input('Value=');
    end
end

fprintf('Entered Matrix 1 is\n');
disp(A);

fprintf('\nEnter elements of Matrix 2 is\n');
for i=1:m,
    for j=1:n;
        B(i,j)=input('Value=');
    end
end

fprintf('Entered Matrix 2 is\n');
disp(B);

fprintf('Row wise Concatenation\n');
%C=[A,B];
C=horzcat(A,B);
disp(C);

fprintf('Column wise Concatenation\n');
%D=[A;B];
D=vertcat(A,B);
disp(D);
fprintf('\n');

fprintf('\nEven elements of Matrix 1 is\n');
disp(A);
fprintf('\n');
for i=1:m,
    for j=1:n;
        if (rem(A(i,j),2)==0)
            fprintf('\nElement = %d (row = %d , col = %d)\n',A(i,j),i,j);
        end
    end
end
```

Question 3

To accept two strings and perform the following operations:
Display the two strings.
To find the substring in a given string.
To convert the string to lowercase.

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%      Description :     Script to search for a substring in a given
%                        string and to convert a string to lower case
%      Author      :     Prabodh C P, Dept of CSE, SIT
%      Date        :     07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


clear all;
clc;
str1=input('Enter String 1','s');
str2=input('Enter String 2','s');

fprintf('\nString 1 is\n');
disp(str1);
fprintf('\nString 2 is\n');
disp(str2);

k = strfind(str1, str2);
if k != 0
     fprintf('Match occurred at positions\n');
     disp(k);
else
     fprintf('Match does not occur\n');
end

low=lower(str1);
fprintf('\nOriginal String\n');
disp(str1);
fprintf('\nConverted String in lower case\n');
disp(low);
```

Question 4.1

To plot the graph for the following:
Parabola

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%       Description :    Script to plot a Parabola
%       Author      :    Prabodh C P, Dept of CSE, SIT
%       Date        :    07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


clear all;
clc;
a=input('Coeff a = ');
b=input('Coeff b = ');
c=input('Coeff c = ');
x = -20:0.01:20;
t=((a*x.^2)+b*x+c);
plot (x, t);
title ('Parabola of ax^2+bx+c for x = -20:0.01:20');
xlabel ('x');
ylabel ('y=ax^2+bx+c');
legend ('Parabola');
grid on;
print(' -djpg ','Parabola.jpg');
```

Question 4.2

To plot the graph for the following:
Straight Line

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%       Description :    Script to plot a Linear curve
%       Author      :    Prabodh C P, Dept of CSE, SIT
%       Date        :    07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


clear all;
clc;
a=input('Coeff a = ');
b=input('Coeff b = ');
x = 0:0.01:50;
t = a*x + b;
plot (x, t);
title ('a*x+b for x = 0:0.01:50');
xlabel ('x');
ylabel ('a*x+b');
legend ('boxon');
legend ('  Linear Curve a*x+b  ');
grid on;
print(' -djpg ','Linear.jpg');
```

Question 4.3

To plot the graph for the following:
Square Waveform

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%      Description :     Script to plot a Square wave
%      Author      :     Prabodh C P, Dept of CSE, SIT
%      Date        :     07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


clear all;
clc;
x=linspace(-4*pi,4*pi,1000);
t=1;
for i=1:1000,
     if rem(i,125)==0
           t=-t;
     end
     y(i)=t;
end

plot(x,y);
title ('Square Wave for x = -4pi:4pi');
axis([-4*pi 4*pi -2 2])
xlabel('x')
ylabel('Square wave')
legend ('boxon');
legend ('  Square Wave  ');
grid on;
print(' -djpg ','Square.jpg');
```

Question 4.4

To plot the graph for the following:
Circle

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%     Description :     Script to plot a Circle of given radius
%     Author      :     Prabodh C P, Dept of CSE, SIT
%     Date        :     07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

clear all;
clc;
r=input('enter radius');
t=[0:0.01:2*pi];
x=r*sin(t);
y=r*cos(t);
plot(x,y);
grid on;
axis('square');
xlabel('x-axis');
ylabel('y-axis');
title('Drawing a Circle');
print(' -djpg ','Circle.jpg');
```

Question 5

To find the sum of first 'N' odd and even numbers. The user has to accept the value of 'N' from the input device.

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%       Description :     Script to find sum of even elements and sum
%                         of odd elements among first 'N' integers
%       Author      :     Prabodh C P, Dept of CSE, SIT
%       Date        :     07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


clear all;
clc;
oddsum=0;
evensum=0;
n=input('Enter number of terms');
fprintf('\nNo of terms is %d\n',n);
for i=1:n,
      V(i) = i;
      if (rem(V(i),2) == 0)
            evensum = evensum + V(i);
      else
            oddsum = oddsum + V(i);
      end
end
for i=1:n,
      fprintf('%d\t',V(i));
end
fprintf('\nSum of even elements is %d\n',evensum);
fprintf('\nSum ofodd  elements is %d\n',oddsum);
```

Question 6

To accept the matrix of order m * n randomly to perform the following operations:

Transpose of a matrix.

To find and replace the specified element with 1 if present otherwise 0 in a given matrix.

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%     Description :     Script to calculate transpose of  a matrix and
%                       to replace a key element with 1 if present or
%                       0 otherwise
%     Author      :     Prabodh C P, Dept of CSE, SIT
%     Date        :     07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


clear all;
clc;
m=input('Enter no of rows');
n=input('Enter no of cols');

fprintf('\nEnter elements of Matrix 1\n');
for i=1:m,
    for j=1:n;
        A(i,j)=input('Value=');
    end
end

fprintf('Entered Matrix is\n');
disp(A);


B = A';
fprintf('Matrix Transpose is\n');
disp(B);


C = A;
fprintf('The Matrix is\n');
disp(C);

key = input('Enter key element');

for i=1:m,
    for j=1:n;
        if(C(i,j)==key)
                C(i,j)=1;
            else
                C(i,j)=0;
            end
    end
end

fprintf('\nElements of Matrix is after replacement\n');
disp(C);
```

Question 7

To accept two strings and perform the following operations:
Display the two strings.
To concatenate two strings.
To convert the string to uppercase.

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%     Description :    Script to concatenate two strings and to
%                      convert a string to upper case
%     Author      :    Prabodh C P, Dept of CSE, SIT
%     Date        :    07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


clear all;
clc;
str1=input('Enter String 1','s');
str2=input('Enter String 2','s');
str3 = strcat(str1, str2);
fprintf('\nString1\n');
disp(str1);

fprintf('\nString2\n');
disp(str2);

fprintf('Concatenated String is\n');
disp(str3);

up=upper(str1);
fprintf('\nString1\n');
disp(str1);
fprintf('\nConverted String in uppercase\n');
disp(up);
```

Question 8.1

To plot the graph for the following:
Sine Waveform

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%       Description :    Script to plot a sine curve
%       Author      :    Prabodh C P, Dept of CSE, SIT
%       Date        :    07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


clear all;
clc;
%x = -5*pi:0.01:5*pi;
x = -5*pi:0.1*pi:5*pi;
%plot (x, sin (x));
%plot (x, sin (x),'-.r*');
plot (x, sin (x),'--gs','LineWidth', 3);
title ('sin(x) for x = -5pi:0.01:5pi');
xlabel ('x');
ylabel ('sin (x)');
legend ('sin (x)');
grid on;
print(' -djpg ','Sine.jpg');
```

Question 8.2

To plot the graph for the following:
Cosine Waveform

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%     Description :    Script to plot a cosine curve
%     Author      :    Prabodh C P, Dept of CSE, SIT
%     Date        :    07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


clear all;
clc;
x = -5*pi:0.01:5*pi;
%x=linspace(-5*pi,5*pi,8000);
plot (x, cos (x));
title ('cos(x) for x = -5pi:0.01:5pi');
xlabel ('x');
ylabel ('cos (x)');
legend ('cos (x)');
grid on;
print(' -djpg ','Cosine.jpg');
```

Question 8.22

To plot the graph for the following:
Sine and Cosine Waveforms

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%      Description :     Plotting sine and cosine curves together
%      Author      :     Prabodh C P, Dept of CSE, SIT
%      Date        :     07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


clear all;
clc;
%x = -5*pi:0.01:5*pi;
x = -5*pi:0.1*pi:5*pi;
plot (x, cos (x),'-.g*');
hold on;
plot(x, sin (x),'--rs');
title ('cos(x) and sin(x) for x = -5pi:0.01:5pi');
xlabel ('x');
ylabel ('cos (x) and sin (x)');
legend ('cos (x)','sin (x)');
grid on;
hold off;
print(' -djpg ','SinCosine.jpg');
```

Question 8.3

To plot the graph for the following:
Triangular Waveform

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%      Description :     Script to plot a triangular wave
%      Author      :     Prabodh C P, Dept of CSE, SIT
%      Date        :     07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


clear all;
clc;
t=0:0.1:5;
x=sawtooth(2*pi*t,0.5);
plot(t,x);
axis([-1 6 -2 2]);
grid on;
print(' -djpg ','Triangular.jpg');
```

Question 8.4

To plot the graph for the following:
Sawtooth Waveform

```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%      Description :     Script to plot a Sawtooth curve
%      Author      :     Prabodh C P, Dept of CSE, SIT
%      Date        :     07-12-2013
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


clear all;
clc;
t=0:0.1:5;
x=sawtooth(2*pi*t);
plot(t,x);
axis([-1 6 -2 2]);
grid on;
print(' -djpg ','Sawtooth.jpg');
```