

## Expt.no-9

Title: To solve system of Linear equations using Gauss Seidel method. Gauss Seidel method is an iterative method used to solve Diagonally dominant system of linear equations taking initial approximation as  $[0 \ 0 \ 0 \dots 0]^T$ . Solution is improved till the error is minimized.

**Ex1:** Write the MATLAB program to solve system of Linear equations using Gauss Seidel method.  $27x+6y-z=85$  ;  $6x+15y+2z=72$  ;  $x+y+54z=110$

### Program:

```
clear
clc
A=[27,6,-1;6,15,2;1,1,54];
B=[85;72;110];
x = 0;
y = 0;
z = 0;
n = 10; % Number of Iterations
for i = 1:n
    x = (B(1,1)-A(1,2)*y-A(1,3)*z)/A(1,1);
    y = (B(2,1)-A(2,1)*x-A(2,3)*z)/A(2,2);
    z = (B(3,1)-A(3,1)*x-A(3,2)*y)/A(3,3);
end
fprintf('The solution of the given system of linear equation after %d iteration is', n)
x
y
z
```

### OUTPUT:

The solution of the given system of linear equation after 10 iterations is

x = 2.4255

y = 3.5730

z = 1.9260