Division:_____ **Roll No. :_____**

Name: _____
A.Y._____

Specimen Scilab Programme Printout

SCI LAB PRACTICAL 1: GAUSS JACOBI ITERATION METHOD

QUESTION: Using suitable loop, write the scilab programme to obtain approximate solution by Gauss Jacobi Iteration Method

$$x + 20y + z = 70$$
$$44x + y + z = 100$$
$$-x + 6y + 25z = 80$$

INPUT CODE:

```
clc
a=[44,1,1;1,20,1;-1,6,25]
b=[100; 70; 80]
disp('[a b]=')
disp([a b])
n=5
disp('no of iteration')
disp(n)
x0=0
y0=0
z0=0
for i=0:n
x(i+1)=(b(1)-a(1,2)*y0-a(1,3)*z0)/a(1,1)
y(i+1)=(b(2)-a(2,1)*x0-a(2,3)*z0)/a(2,2)
z(i+1)=(b(3)-a(3,1)*x0-a(3,2)*y0)/a(3,3)
x0=x(i+1)
y0=y(i+1)
z0=z(i+1)
end
disp('x=');
disp(x)
disp('y=');
disp(y)
disp('z=');
disp(z)
```

OUTPUT :

[A B]=

```
  44.   1.    1.    100.
   1.   20.   1.    70.
  -1.    6.   25.   80.
```

no of iteration

```
   5.
```

x=

```
   2.2727273
   2.1204545
   2.1436983
   2.1413199
   2.1416388
   2.1416044
```

y=

```
   3.5
   3.2263636
   3.2714318
   3.2672905
   3.2679038
   3.2678429
```

z=

```
   3.2
   2.4509091
   2.5104909
   2.5006043
   2.5015031
   2.5013686
   2.0765853
   2.0765868
   2.076587
```

Division:_____ **Roll No. :_____**

Name: _____

A.Y._____

SCILAB PRACTICAL 2: NEWTON RAPHSON METHOD

QUESTION: Using suitable loop, write the scilab programme to obtain approximate root of $x^3 - 5x + 3$ in the interval [0,1], using Newton Raphson Method, correct upto four decimal places.

INPUT

```
clc;
deff('[y]=f(x)','y=x^3-5*x+3');
deff('[y]=fd(x)','y=3*x^2-5');
x=1;x1=0;i=0;
error=0.00001;
disp("x=")
disp(x)
disp("x1=")
disp(x1)
disp("By Newton Raphson Method")
disp("Roots")
while(abs(x-x1)>=error)
   y=x-(f(x)/fd(x));
   disp(y);
   x1=x;
   x=y;
   i=i+1;
end
disp("No of iteration")
disp(i);
```

OUTPUT

x=

1.

x1=

0.

By Newton Raphson Method

Roots

0.5

0.6470588

0.6565728

0.6566204

0.6566204

No of iteration

5.