**DIVISION / ROLL NO.: \_\_\_ \_D2A/55\_\_\_\_\_\_\_\_\_\_**

**Vivekanand Education Society’s Institute of Technology (Academic Year 2020-2021)**

**Subject: Engineering Mathematics- II**

**Semester: II**

**TUTORIAL/SCILAB COVER PAGE**

**TUTORIAL /SCILAB NO :- \_\_\_\_\_2\_\_\_\_\_\_**

**TUTORIAL TOPIC:- \_NUMERICAL SOLUTIONS\_OF ORDINARY DIFFERENTIAL EQUATIONS\_\_**

**DATE OF PERFORMANCE/SUBMISSION :- \_\_\_\_\_\_\_05/07/2021\_\_\_\_\_\_\_\_\_\_**

**NAME OF THE STUDENT: - \_\_\_\_\_\_\_\_SHREYAS ARUN SAWANT\_\_\_\_\_\_\_\_\_\_\_**

**SIGNATURE OF TEACHER: - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

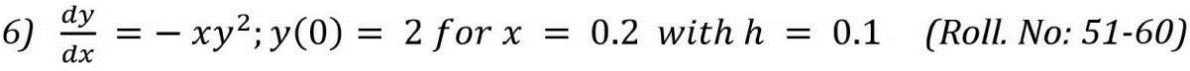
Division: D2A Roll No: 55

Name: Shreyas Arun Sawant

A.Y.: 2020-2021

SCI LAB PRACTICAL 1: MODIFIED EULER’S METHOD

QUESTION: Using suitable loop, write a sci-lab program to obtain approximate solution of y using Modified Euler’s Method (Correct up to five decimal places).



INPUT CODE:

clc;

deff('[d]=f(x,y)','d=-x\*y^2');

x0=input("Enter intial value of x0: ")

y0=input("Enter intial value of y0: ")

h=input("Enter intial value of h: ")

xn=input("Enter intial value of xn: ")

n=input("Enter number of iterations for y: ")

for i=1:n

disp('Step= ');disp(i);

x(i)=x0+h;

y(i)=y0+h\*(f(x0,y0));

disp('At x= ',x(i));

disp('Euler solution y= ',y(i));

disp('Modified solution y= ');

for j=1:n;

y(j)= y0+h/2\*(f(x0,y0)+f(x(i),y(i)));

disp(y(j));

y(i)=y(j);

end

disp("\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_");

if x(i)==xn then

break;

else x0 = x(i)

y0 = y(i);

end

end