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COURSE: B.Sc(hons.)Physics

ROLL NO.: 81

**SOURCE CODE:**

clc;

clear;

clf;

ts=input("Enter the surroundings temperature=")

to=input("Enter the initial temperature of body=")

k=input("Enter the proportinality constant=")

tt=input("enter the time at which body temp is to be calculated=")

function **ydot**=f(**t**, **y**)

**ydot**= -(k)\*(**y**-ts)

endfunction

y0=to

t0=0

t=0:1:100

y=ode(y0,t0,t,f)

xlabel("time","fontsize",4)

ylabel("temperature(C)","fontsize",4)

a=gca()

a.x\_location="origin"

a.y\_location="origin"

title('ODE','fontsize',5)

plot2d(t,y,1)

for t=0:1:100

if t==tt

y=ode(y0,t0,t,f)

disp("Temperature of the body after "+string(tt)+" min. is="+string(y)+"C")

end

end

**OUTPUT:**

Enter the surroundings temperature=25

Enter the initial temperature of body=80

Enter the proportinality constant=0.056

enter the time at which body temp is to be calculated=10

Temperature of the body after 10 min. is=56.416494C

