**AIM:TO PLOT SPECIFIC HEAT OF SOLIDS**

**SOURCE CODE:**

clc;

clear

clf;

R=8.314

h=6.624e-34

ThE=input("Enter Einstein temperature:")

thD=input("Enter Debye temperature:")

t0=1

tm=500

N=500

t=linspace(t0,tm,N)

x=ThE./t

y=exp(x)

z=1./(y-1).^2

Ce=3\*R\*(x.^2).\*y.\*z

Cdp=3\*R\*ones(t)

function y=f(z)

y=(z^4\*exp(z))/((exp(z)-1)^2);

endfunction

for i=1:N

T2=thD/t(i)

I(i)=intg(0,T2,f)

Cd(i)=9\*R\*I(i)/(T2^3)

end

plot(t,Cdp,"black")

plot(t,Ce,"red")

plot(t,Cd,"blue")

legend(["Dulong Petit","Einstein","Debye"],4)

xlabel("T(K)","fontsize",5)

ylabel("Specific heat","fontsize",5)

**OUTPUT:**

Enter Einstein temperature:120

Enter Debye temperature:120

