ARYAMAN MISHRA

19BCE1027

syms x r c1 c2

p1 = input('Enter the coefficient of D2y: ');

p2 = input('Enter the coefficient of Dy: ');

p3 = input('Enter the coefficient of y: ');

eq=p1\*r^2+p2\*r+p3;

r=solve(eq, r);

p=real(r(1));

q=imag(r(1));

if q~=0

y1=exp(p\*x)\*cos(q\*x);

y2=exp(p\*x)\*sin(abs(q)\*x);

elseif r(1)==r(2)

y1=exp(r(1)\*x);

y2=x\*exp(r(1)\*x);

else

y1=exp(r(1)\*x);

y2=exp(r(2)\*x);

end

y\_h=c1\*y1+c2\*y2;

W=simplify(y1\*diff(y2)-y2\*diff(y1)); %%% W is the Wronskian

f = input('Enter the non-homogeneous part: ');%%% Solving of Non-Homogeneous part

g=f/p1;

y\_p=-y1\*int(y2\*g/W)+y2\*int(y1\*g/W);

y1=simplify(y\_h+y\_p); % general solution

disp('The general solution of the given ODE is ')

disp(y1)

% The following lines for solving boundary value problem on [a,b]:



