YAKUBU NATHAN BALA
17/ENG04/076
ELECT./ELECT.

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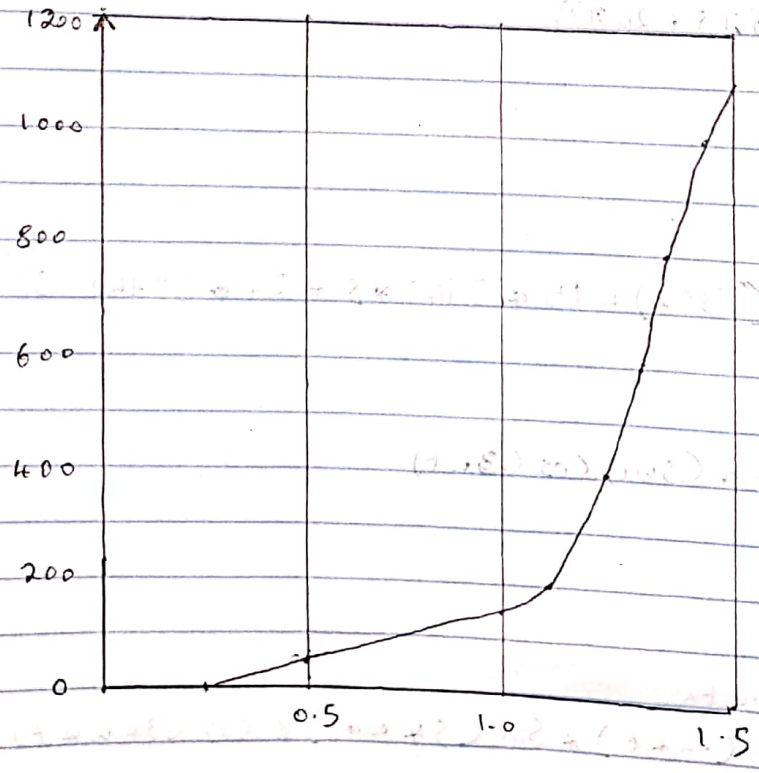
4.) (a)
- Command window
- Clc
- Closeall
- Syms n(t)
- D = diff(n)
- Ode = (diff(n,t,2)) - diff (n,t) - 12*n == 144*t^3 + 12.5
- Cond 1 = D(0) == 0.5;
- Cond 2 = n(0) == 5;
- Conds = [Cond1, Cond2];
- dSol(t) = dSolve (Ode, Conds)
- dSol = Simplify (dSol (t))
- tn = (0:0.1:1.5)
- Fenny = Subs (dSol, tn)
- Plot (tn, Yakubu)
- grid On

(ii)



① - Command window
- Clear
- clc
- Syms y(t) y x(t)
- Dy = diff (y,t)
- Dx = diff (x,t)
- equ1 = Dy = exp (-2*t) + 2*x
- equ2 = Dx = exp (-1*t) - y
- Ode = [equ1 ; equ2]
- ~~S = dsolve (ode)~~ Yakubu = dsolve (ode)
- ySol (t) = Yakubu . y
- xSol (t) = Yakubu . x
- fplot (ySol)
- hold on
- fplot (xSol)

② $P(s) = \dfrac{\pi}{(s^2 + 15\pi s + 24\pi^3)}$

- Command window
- Clear
- clc
- Syms f(s) a
- u = (3.142) / ((s^2) + 15 * 3.142 * s + 24 * (3.142 ^ 3))
- ilaplace (u)

$f(t) = Ke^{-at} \sin(swt) \cos(3wt)$

- Command window
- Clear
- clc
- Syms f(t) K w ta
- Z = K * exp (-a * t) * Sin (s * w * t) * Cos (3 * w * t)
- Laplace (Z)