

Mkpolu to Ubong Obot  
Civil Engineering  
17/ENG03/015



ENG 381

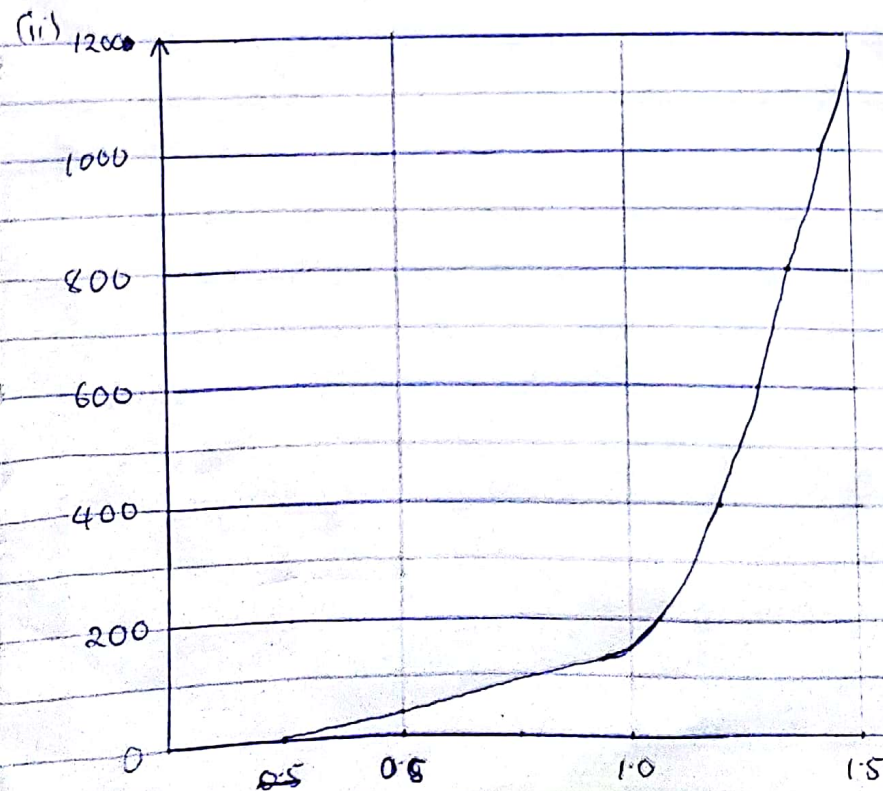
23rd November, 2019

Assignment

4.(a)

(i) - Command Window

- clc
- close all
- syms n(t)
- D = diff(n)
- Ode = (diff(n,t,2)) - (diff(n,t)) - (12\*n) == 144\*t^3 + 12.5;
- cond1 = D(0) == -0.5;
- Cond2 = n(0) == 5;
- Cond3 = (Cond1 Cond2);
- dsol(t) = dsolve(Ode, Cond3);
- dsol = simplify(dsol(t))
- tn = (0:0.1:1.5)
- semmy = subs(dsol, tn)
- Plot(tn, ~~Ubong~~)
- grid on



4 (b) 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]

sampson = dsolve(ode)

ysol(t) = sampson.y

xsol(t) = sampson.x

plot(ysol)

hold on

plot(xsol)

$$4(c) \quad P(s) = \frac{\pi}{(s^2 + 15\pi s + 24\pi^3)}$$

Command window

clear

clc

syms f(s) a

$$u = (3.142) / ((s^2) + (15 * 3.142 * s + 24 * (3.142^3)))$$

ilaplace(u)

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

Command window

clear

clc

syms f(t) k w t a

$$z = k * \exp(-a * t) * \sin(s * w * t) * \cos(3 * w * t)$$

laplace(z)