


AKUMA SUNNY U.

17/ENG04/009



16th March, 2021

ELECTRICAL/ELECTRONICS ENGINEERING

ENG 352 ASSIGNMENT 1

MATLAB code

Command window

clear

clc

format ~~long~~ long g

V = 0.5

for i = 1:100

iter(i+1) = i;

$V(i+1) = 3q_e - C(C_{500} + (\log(V(i))) \cdot 3) - (34.37(0.020 - V(i))) / 0.3$

$e_a(i+1) = \text{abs}((V(i+1) - V(i)) / V(i+1)) - 100;$

if  $e_a(i+1) <= 1 \text{E} - 4$

break

end

fprintf('end')

plot(y, iter)

axis tight

grid on

grid minor



iter	V	$E_n$
0	0.5	0
1	834.05	99.791
2	294.17	18.936
3	302.16	2.7895
4	303.85	0.40995
5	304.04	0.060153
6	304.06	0.0088241
7	304.07	0.0012944
8	304.07	0.0012944
9	304.07	$0.9635e^{-12}$

Converging at iter = 7, give  $V = 304.07$ .

∴ The converging value is seen to be 304.07

proofing

$$7d = \frac{0.34^2}{500 + (1.4V)^3} - 0.02V$$

$$500 + (1.4V)^3$$

If  $V = 304.07$

$$7d, 7d = 9.8 \times 3.8 \approx 34.3$$

$$= 0.34(30.407)^2 - 0.2(304.07)$$

$$500 + (1.4 \times 304.07)^3$$

$$= 34.25$$