

NAME: ODOGWU PAUL CHIDOZIE  
 MATRIC NO.: 15/ENG04/039  
 DEPARTMENT: ELECT/ELECT

### Assignment 1

(i)(i)  $f(y) = \cos(y)$

$y_0 = 0.05$

when  $y = 0.05$

$f(y) = \cos(0.05)$

$= 0.9999996192$

$y = 0.9999996192$

$\therefore f(y) = \cos(0.9999996192)$

$= 0.9998476953$

$f(y) = \cos(0.9998476953)$

$= 0.9998477415$

$y = 0.9998477415$

$f(y) = \cos(0.9998477415)$

$= 0.9998477415$

$y = 0.9998477415$

$f(y) = \cos(0.9998477415)$

$= 0.9998477415$

$y$	$f(y) \rightarrow (i+1)$
0.05	0.9999996192
0.9999996192	0.9998476953
0.9998476953	0.9998477415
0.9998477415	0.9998477415
0.9998477415	0.9998477415

(ii)  $f(z) = e^{-15z} - z + \cos(z)$

$z = e^{-15z} + \cos(z)$

$f(z) = e^{-15z} + \cos(z)$

$z_0 = 0.1$

when  $z = 0.1$

$f(z) = 1.223128637$

when  $z = 1.223128637$

$f(z) = 0.9997721589$

when  $z = 0.9997721589$

$f(z) = 0.9998480715$

when  $z = 0.9998480715$

$f(z) = 0.999848048$

$z$	$f(x) \rightarrow z(i+1)$
0.1	1.223128637
1.223128637	0.9997721589
0.9997721589	0.9998480715
0.9998480715	0.999848048
0.999848048	0.999848048

$$(2) \quad \frac{dx}{dt} + 2x = 10e^{3t}$$

$$x = 6 \text{ when } t = 0$$

$$x'(t) + 2x(t) = 10e^{3t}$$

$$\mathcal{L}\{x'(t)\} = sX(s) - x(0)$$

$$\mathcal{L}\{x(t)\} = X(s)$$

$$\mathcal{L}\{e^{3t}\} = \frac{1}{s-3}$$

$$sX(s) - x(0) + 2X(s) = 10 \cdot \left[ \frac{1}{s-3} \right]$$

$$(s+2)X(s)$$