NAME: JAM TERHILE JOEKMM
DEPT: COMPUTER ENGINEERING
MATRIC: 15/ENG02/032

(1) SOLUTION TO QUESTION ONE(1)

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

Using fix point iteration method

$f(y) = 0$

$\cos(y) = 0$

adding y to both sides

$y + \cos(y) = y$

$y = \cos(y) + y$

$y_{i+1} = \cos(y_i) + y_i$

at initial value of $y = 0.05$

at $i = 0$ $\quad y_0 = 0.05$

$y_{0+1} = \cos(0.05) + 0.05$

$y_1 = \cos(0.05) + 0.05$

$y_1 = 1.0499$

at $i = 1$ $\quad y_1 = 1.0499$

$y_{1+1} = \cos(y_1) + y_1$

$y_2 = \cos(1.0499) + 1.0499$

$y_2 = 2.0498$

at $i = 2$ $\quad y_2 = 2.0498$

$y_{2+1} = \cos(y_2) + y_2$

$y_3 = \cos(2.0498) + 2.0498$

$y_3 = 3.0491$

at $i = 3$ $\quad y_3 = 3.0491$

$y_{i+3} = \cos(y_3) + y_3$

$y_4 = \cos(3.0491) + 3.0491$

$y_4 = 4.0477$

at $i = 4$ $\quad y_4 = 4.0477$

$y_{1+4} = \cos(4.0477) + 4.0477$

$y_5 = 5.0452$

i	y
0	0.05
1	1.0499
2	2.0498
3	3.0491
4	4.0477

SOLUTION TO QUESTION (2)

(2) $f(z) = e^{-15z} - z + \cos(z)$ at 0.1 initial Value

Using fix iteration method

$f(z) = 0$

$e^{-15z} - z + \cos(z) = 0$

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

$z_{i+1} = e^{-15z_i} + \cos(z_i)$

at $i = 0$ $z_0 = 0.1$

$z_1 = e^{-15(0.1)} + \cos(0.1)$

$z_1 = 1.2231$

at $i = 1$ $z_1 = 1.2231$

$z_{1+1} = e^{-15z_1} + \cos(z_1)$

$z_2 = 0.9997$

at $i = 2$ $z_2 = 0.9997$

$z_{2+1} = e^{-15(z_2)} + \cos(z_2)$

$z_3 = 0.9998$

at $i = 3$ $z_3 = 0.9998$

$z_{3+1} = e^{-15(z_3)} + \cos(z_3)$

$z_4 = 0.9998$

at $i = 4$ $z_4 = 0.9998$

$z_{4+1} = e^{-15(z_4)} + \cos(z_4)$

$z_5 = 0.9998$

i	z
0	0.1
1	1.2231
2	0.997
3	0.998
4	0.9998