QUESTION ONE [30 Marks] Compulsory

a) (i) Determine the value of f(-1) from the set of function values

x	-4	-2	0	2	4	6	8
F(x)	541	55	1	-53	-155	31	1225

Using Gregory – Newton forward difference formula **(8 Marks)**

(ii) Change 0.526_{10} to Octal form **(4 Marks)**

b) (i) State and briefly explain the major steps involved in solving a given problem using a computer **(8 Marks)**

(ii) List three basic properties of an algebraic equation. **(6 marks)**

c) Change 1011.101_2 into denary system **(4 marks)**

QUESTION TWO [20 Marks]

a) Explain the Newton – Raphson method to find a root of the equation f(x) = 0 and hence derive its iteration formula **(8 Marks)**

b) Find the real root of the equation $xe^x - 2 = 0$ correct to two decimal Places using Newton- Raphson method. **(12 Marks)**

QUESTION THREE [20 Marks]

a) Obtain the Regula- falsi formula for finding the real root of an equation **(7 Marks)**

b) Use Regula – falsi method to find a real root of the equation $Log\ x - \cos x = 0$, accurate to four decimal places after three successive approximations. **(13 Marks)**