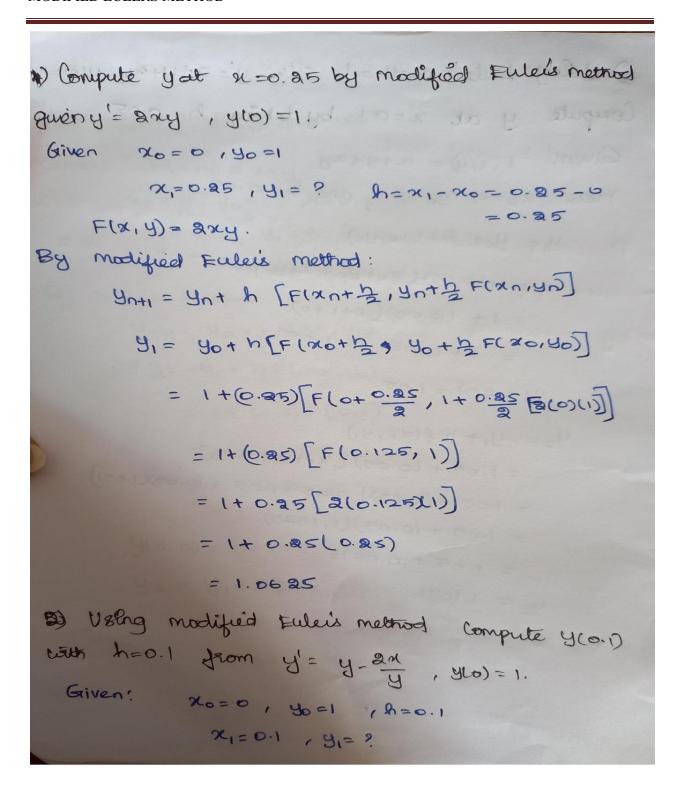


SNS COLLEGE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION) COIMBATORE - 35



UNIT 5NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATION MODIFIED EULERS METHOD





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Ey modified Euleus method,

$$y_{n+1} = y_n + h F(x_{n+1} + y_n + h F(x_{n}, y_n))$$
 $y_1 = y_0 + h F(x_0 + h + y_0 + h + h F(x_0, y_0))$
 $= 1 + (0.1)F(0 + \frac{0.1}{2}, 1 + \frac{0.1}{2} F(0.1))$
 $= 1 + (0.1)F(0 + \frac{0.1}{2}, 1 + \frac{0.1}{2} F(0.1))$
 $= 1 + (0.1)F(0.05 + 1.05)$
 $= 1 + (0.1)(0.95 + 1.05)$
 $= 1 + (0.1)(0.95 + 1.05)$
 $y_1(0.1) = 1.095 + 8$

Using modified Euleus method find $y_1(0.1)$ if

 $y_1(0.1) = 1.095 + 8$

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