3. (a) Find y (1.1) and y (1.2) for a given IVP $\frac{dy}{dx} = x + y,\quad y(1) = 0$ by using Taylor's series method of order 4, in scilab. 5

(b) Find y (1.1) and y (1.2) with h = 0.01 ; for a given IVP $\frac{dy}{dx} = x^2 + y^2$, y (1) = 1.5 by using R-K method of order 4, in scilab. 5

Group - B

4. Lab copy 5

5. Viva-voce 5

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PG EVEN SEMESTER EXAMINATION, 2023

MATHEMATICS

2nd Semester

Course No. : MAT - 555

Numerical Analysis (Lab)

Full Marks : 30

Pass Marks : 12

Time : 3 hours

The figures in the margin indicate full marks for the questions

(Answer any two question from Group - A)

Group - A

1. (a) Find a real root of the equation $x^3 - x - 1 = 0$ using Bisection method in Scilab. 5

(b) Use Newton-Raphson method to find a root of equation x. sinx + cos x = 0, in scilab 5

2. (a) Evaluate $\int_0^1 \frac{1}{1+x}\, dx$ by using composite trapezoidal value, in scilab. 5

(b) Evaluate $\int_0^4 e^x\, dx$ by using composite Simpson's rule, in scilab. 5

(Turn Over)