

(MTH603)final termJuly-2012

2 Marks Questions:

Q. Evaluate the integral

$$\int_0^{\pi/2} \cos 2x dx \text{ using Simpson's } 1/3 \text{ rule. Where } h = \pi/4$$

Q. Difference between Jacobi's Method and Gauss Seidal Method.

Q. Evaluate the integral

$$\int_3^5 (\log x + 1) dx \text{ Using Trepezoidal rule. Where } h = 1$$

Q. if $y' = t + 2y$, then find next two derivation in term of t and/or y.

3 Marks Questions:

Q. Evaluate the integral

$$\int_{\pi/2}^{\pi} \sin x dx \text{ using Simpson's } 3/8 \text{ rule. Where } h = \pi/4$$

Q. Use Ruge-Kutta method of order four to find value of k_1 and k_2 for initial value problem. $y' = 1 + xy$, $y(0) = 2$, $h = 0.2$

Q. Find the residuals by relation method

$$6x_1 - 3x_2 + x_3 = 11$$

$$2x_1 + x_2 - 8x_3 = -15$$

$$x_1 - 7x_2 + x_3 = 10$$

With starting vector (0,0,0)

5 Marks Questions:

Q. Evaluate the integral

$$\int_0^3 (x^2 + 1) dx \text{ using Simpson's } 3/8 \text{ rule. Where } h = 1$$

Q. Solve by Gauss Seidal iterative method to 3 decimal place up to Two iterations

$$8x - y - 2 = 8$$

$$x - 7y + 2z = -4$$

$$2x + y + 9z = 12$$

Q. Evaluate the integral

$$\int_0^4 (x^2 + x + 2) dx \text{ using Simpson's } 1/3 \text{ rule. Where } h = 1$$

Q. Find the 2nd derivative of f(x) at x=0.3 using three point equation

x	0.1	0.2	0.3	0.4	0.5	0.6
f(x)	0.125	0.352	0.652	0.756	0.812	0.924