My Paper (MTH603) 16-07-2012

2 Marks Questions:

Q. Evaluate the integral

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

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

Q. Evaluate the integral

$\int_3^5 (\log x + 1) dx$ 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

$\int_{\pi/2}^{\pi} \sin x dx$ using Simpson's 3/8 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. $y' = 1 + xy,\ y(0) = 2,\quad h = 0.2$

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

$\int_0^3 (x^2 + 1) dx$ using Simpson's 3/8 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

$\int_0^4 (x^2 + x + 2)dx$ using Simpson's 1/3 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