DEPARTMENT OF COMPUTER SCIENCE ROLLWALA COMPUTER CENTRE GUJARAT UNIVERSITY

M.C.A. - II

ROLLNO:10

N A M E : Pradip S Karmakar

S U B J E C T : Computer Oriented Numerical Methods (CONM)

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	Practical Assignment 2	175	01/07/2020	
1	Evaluate Integral of (e^x^2)*sin x dx from 0 to 1 using Trapezoidal rule correct to 3 decimal places			

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2	Evaluate the integral:integral of dx/(1+x) from 0 to 1 Using(i)				
	Simpson's 1/3 Rule correct to six decimal places (ii) Simpson's				
	3/8 rule correct to six decimal places				
3	A car laps a race track in 84 seconds. The speed of the car at				
	each 6-second interval is determined by using a radar gun and is				
	given from the beginning of the lap, in feet/second by the				
	entries in the following table.				
	Time 0 6 12 18 24 30 36 42 48 54 60 66 72 78 84				
	Speed 124 134 148 156 147 133 121 109 99 85 78 89 104 116				
	123				
	How long is the track? Use (i) Trapezoidal Rule (ii) Simpson's				
	1/3 rule (iii) Simpson's 3/8 rule				
4	Write a program to solve the differential equation dy/dx=(y-				
	x)/(y+x), where y(0) = 1, using (i) Euler's method (ii) Runge -				
	Kutta second order method in the interval 0 to 1 using step-size				
	0.1 Tabulate your results				
5	Find the solution of differential equation, for the range $0 \le t$				
	$<= 1 \text{ dy/dt} = t + (y)^{(1/2)} \text{ with } y(0) = 1, \text{ taking step size } h = 0.2$				
	using Runge-Kutta method of order 4				
6	Find the solution of differential equation $dy/dt = 1/2$ (t+y), for y				
	(2.0) given $y(0) = 2$, $y(0.5) = 2.636$, $y(1.0) = 3.595$ and $y(1.5) =$				
	4.968, use h = 0.5 using (i) Milne-Simpson's predictor				
	corrector method (ii) Adam-Bashforth-Moulton's predictor-				
	corrector method				
7	Use Adam-Bashforth-Moulton's predictor-corrector method to				
	obtain the solution of the equation $dy/dx = 1-xy/x^2$ at $x = 1.4$,				
	where $y(1) = 1$. Compute $y(1.1)$, $y(1.2)$ and $y(1.3)$ using Runge-				
	Kutta second order method. Tabulate the results obtained thus.				
8	Use Milne Simpson predictor corrector method to obtain the				
	solution of the equation $dy/dx = 1-xy/x^2$ at $x = 1.4$, where $y(1)$				
	= 1. Compute $y(1.1)$, $y(1.2)$ and $y(1.3)$ using Runge-Kutta				
	fourth order method. Tabulate the results obtained thus.				
9	From the following table estimate $y'(1.1)$ and $y'(1.2)$ using 3				
	point formulas and 5 point formulas x 1.0 1.05 1.10 1.15 1.20				
	1.25 1.30 y 1.0 1.0247 1.0488 1.0724 1.0954 1.1180 1.1402				