National University

of Computer & Emerging Sciences Peshawar Campus

Program: BS (CS)
Semester: Spring-2020
Course: MT207 / CS325

Examination: Assignment # 03
Total Marks: 10, Weightage: **10**
Date of Submission: 09 / 06 / 2020

Note: Attempt all questions

Problem 1

Use Taylor series method of order 3 to approximate $x(0.2)$ and $y(0.2)$ using $h = 0.1$.

$$x' = -y + t$$
$$y' = x - t$$
$$x(0) = -3, \quad y(0) = 5$$

Problem 2

Use the RK4 method with $h = 0.1$ to obtain approximation of the indicated value.

$$y' = 2x - 3y + 1, y(1) = 5; \quad y(1.5)$$

Problem 3

Using the trapezium rule, find $\int_0^6 f(x)dx$, from the following set of values of x and $f(x)$.

x	0	1	2	3	4	5	6
$f(x)$	1.56	3.64	4.62	5.12	7.05	9.22	10.44

Problem 4

The following table gives the value of the elliptical integral

$$F(\phi) = \int_0^{\phi} \frac{dt}{1 - \frac{1}{2}\sin^2 t}$$

for certain values of ϕ. *Find the values of* ϕ *if* $F(\phi) = 0.3887$

ϕ	21	23	25
$F(\phi)$	0.3706	0.4068	0.4433

Problem 5

Find dy/dx *at* $x = 1.3$ *from the following table of values*

x	1	3	5	7
y	1	9	25	49

The End

Note for Submission

Please write the solutions of the above problems on A4 Pages and scan it using **cam-scanner** and make a single pdf file and submit it by email to: osama.sohrab@nu.edu.pk

Please give the name to your file in the following format: A#3,6A,Your Roll No