

BRAC UNIVERSITY
Department of Computer Science and Engineering

Quiz 03
Semester: Summer 2024

Duration: 20 min
Full Marks: 10

Name:	ID:	Section:
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CSE 330: Numerical Methods
Set A

1. **[CO3]** The following Data set is generated by the function $f(x) = 3\cos x + 4x\ln x - x\sin x$

x	f(x)
0.3	1.3326
0.4	1.1414
0.5	1.0067
0.6	0.9112
0.7	0.8449
0.8	0.8022

(a) (3+2 marks) Based on the above data, compute $f'(0.4)$ using the **Backward Difference** method, and also calculate the **relative percentage error**. Use 6 significant figures.

(b) (5 marks) Compute $D^{(1)}_{0.2}$ at $x = 0.6$ using **Richardson extrapolation** method up to 5 significant figures.