BRAC UNIVERSITY
Department of Computer Science and Engineering

Quiz 03 **Duration: 20 min**
Semester: Summer 2024 **Full Marks: 10**

Name:	ID:	Section:

CSE 330: Numerical Methods
Set A

1. **[CO3]** The following Data set is generated by the function **f(x) = xlnx + 5x - 2sin(x)**

x	f(x)
1	3.3171
1.1	3.8224
1.2	4.3547
1.3	4.9140
1.4	5.5002
1.5	6.1132

(a) (3+2 marks) Based on the above data, compute **f′(1.0)** using the **Forward Difference** method, and also calculate the **error bound** at **x = 4**. Use 6 significant figures.

(b) (5 marks) Compute $\mathbf{D^{(1)}_{0.2}}$ at **x = 1.3** using **Richardson extrapolation** method up to 5 significant figures.