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 B

1. **[CO3]** The following Data set is generated by the function $\mathbf{f(x) = 2\ln x - 2x^2 - 4x\cos(x)}$

x	f(x)
2	-3.2845
2.1	-3.0954
2.2	-2.9243
2.3	-2.7844
2.4	-2.6901
2.5	-2.6560

(a) (3+2 marks) Based on the above data, compute **f′(2.5**) using the **Backward Difference** method, and also calculate the **error bound** at **x = 6**. Use 5 significant figures.

(b) (5 marks) Compute $\mathbf{D^{(1)}_{0.2}}$ at **x = 2.2** using **Richardson extrapolation** method up to 6 significant figures.