BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION MO/2023)

CLASS: BCA **SEMESTER :VI**
BRANCH: BCA **SESSION : MO/2023**

SUBJECT: CA158 NUMERICAL STATISTICAL & METHODS

TIME: 02 Hours **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Round-off the following numbers correct upto 3 decimal places: 0.4689, 0.000956, 0.0017, 1.350007	[2]	1	1
Q.1(b)	Find absolute, relative & percentage errors, in the approximate representation of 2/3 correct to 4 significant figures.	[3]	1	2
Q.2(a)	What is Bisection method? Explain.	[2]	1	1
Q.2(b)	Find the root of the equation $x^3 - 8x - 4 = 0$ correct to 4 significant figures, by Newton Raphson method.	[3]	1	2
Q.3(a)	What is backward difference ?	[2]	2	1
Q.3(b)	Using Newton's forward interpolation formula, find the value of f(x) at x=1.3 from the following data: X: 0 1 2 3 4 Y: 1 1.5 2.2 3.1 4.3	[3]	2	3
Q.4(a)	Prove that: (i) $\Delta c=0$ where c is a constant. (ii) $\Delta=E-1$	[2]	2	1
Q.4(b)	Use Lagrange's interpolation formula to find the values of f(x) at x=0; given the following table. X: -1 -2 2 4 f(x): -1 -9 11 69	[3]	2	2
Q.5(a)	What is homogeneous system of linear equations ?	[2]	3	1
Q.5(b)	Solve by Gauss Elimination method, the system $x+2y-3z = 10$ $x+3y-2z= 7$ $2x-y+z =5$	[3]	3	2

:::::26/09/2023 M:::::