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

CLASS: BTECH **SEMESTER : IV**
BRANCH: CHEM. ENGG, EEE AND MECH. ENGG **SESSION : SP2023**

SUBJECT: MA308 DIFFERENCE EQUATIONS

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)	Derive a difference equation from $y_{k+1}=c_1 2^k+c_2 5^k$	[2]	CO1	1.10
Q.1(b)	Derive $\Delta^n(x_k y_k)$	[3]		
Q.2	Evaluate $\Delta^n(x_k)$	[5]	CO1	1.10
Q.3	Find the solution of $y_{k+1}-\beta y_k=\alpha$	[5]	CO2	1.12, 1.20
Q.4	Describe the geometrical methods to solve a general first or nonlinear difference equation.	[5]	CO1, CO2, CO3	1.10,1.11, 1.12,1.20, 1.21,1.24, 1.25 and 1.26
Q.5	Show that the functions 3^k, $k3^k$ and $k^2 3^k$ are linearly independent.	[5]	CO1, CO2, CO3	1.10,1.11, 1.12,1.20, 1.21,1.24, 1.25 and 1.26

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