THE VILLAGE
INTERNATIONAL SCHOOL

Date: 11/07/2022 | MONTHLY TEST -2 **(2022-23)** | Max. Marks: 20
Grade : XII | APPLIED MATHEMATICS(241) | Time : 1 hour

General Instructions

- This question paper consists of three sections, A, B and C.
- Section A comprises of 4 questions of 1 mark each.
- Section B comprises of 4 questions of 2 marks each.
- Section C comprises of 2 questions of 4 marks each.
- All questions are compulsory.

SI	SECTION A	MARKS
1	The region represented by $x \geq 0\ y \geq 0$ is a) First Quadrant b) Second Quadrant c) Third Quadrant d) Fourth Quadrant	1
2	The objective function of a LPP is a) Constant b)Linear functions to be optimised c) . Relation between the variables d) None of these	1
3	The minor of the element $a_{23}\ if\ \Delta = \|5\ 3\ 8\ 2\ 0\ 1\ 1\ 2\ 3\| \ is$ a) 7 b) 6 c) 5 d) 8	1
4	If A and B are two invertible matrices of the same order then $(AB)^{-1} =$ a) $A^{-1}B^{-1}$ b) $B^{-1}A^{-1}$ c) A^{-1} d) B^{-1}	1
	SECTION B	
5	If the matrix $[p\ 2\ 5\ 7\ 3\ 4\ 5\ \ -1\ \ -6]$ is singular, then find the value of p.	2
6	Using Cramer's rule, solve the system of equations: $2x + 3y = 10; x + 6y = 4$	2
7	Manu has Rs. 36,000 for purchase of rice and wheat. A bag of rice and a bag of wheat cost Rs. 180 and Rs. 120 respectively. He has a storage capacity for 250 bags only. He earns a profit of Rs. 11 and Rs. 9 per bag of rice and wheat respectively.Formulate an LPP to maximise the profit.	2
8	If $\|x+1\ x-1\ x-3\ x+2\| = \|4\ \ -1\ 1\ 3\|$, then find the value of x.	2

	SECTION C	
9	Find inverse of the matrix $A = [1 \ -1 \ 2 \ 0 \ 2 \ -3 \ 3 \ -2 \ 4]$	4
10	Maximise $Z = 3x + 4y$ Subject to the constraints, $x + y \leq 4, \ x \geq 0, \ y \geq 0$	4