

Kathmandu University

First In-semester Examination-2025

Department of Artificial Intelligence, Panchkhal

Level: B.Tech Artificial Intelligence

Course: AIMA 203

Year: I

Semester: II

Time: 15 minutes

F.M. : 10

Roll No:

Marks Scored:

SECTION "A" [10 Q \times 1 = 10 marks] (*Do any ten*).

Fill in the blanks by writing the most appropriate word(s) or symbol(s).

1. Give an example of a vector and its scalar. _____.
2. Give an example of a subspace of \mathbb{R}^2 : _____.
3. Give an example of 3×4 row echelon for matrix. _____.

4. Find the rank of the matrix $\begin{bmatrix} 1 & 3 & 5 \\ 2 & 6 & 10 \\ 4 & 12 & 20 \end{bmatrix}$. _____.

5. Determine whether the system has unique solution, no unique solution or no solution.

$$\left[\begin{array}{cc|c} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{array} \right] \text{ _____}.$$

6. Write the basis of the vector space 0. _____.

7. Suppose a 4×7 matrix A has four pivot columns. Is $Col(A) = \mathbb{R}^4$? Is $Nul(A) = \mathbb{R}^3$?
?