INFORMATION TECHNOLOGY UNIVERSITY, LAHORE, PAKISTAN

BS Computer and Software Engineering

Linear Algebra

Quiz# 1 (BSSE23-A), Fall 2024

September 03, 2024

Name: Zunaira Abdul Aziz Roll Number: BSSE23058

Maximum Time Allowed: 10 minutes Maximum Marks: 10

---

1. Given vectors

$$\mathbf{u} = \begin{bmatrix} -4 \\ 8 \end{bmatrix}, \quad \mathbf{v} = \begin{bmatrix} 6 \\ 3 \end{bmatrix}, \quad \mathbf{w} = \begin{bmatrix} 8 \\ 6 \end{bmatrix}$$

10

(a) Which of the given vectors are perpendicular to each other? Show your work. [4]

(b) Find the unit vector of v. [2]

(c) Find the cos θ between vectors u and w. [4]

(a) $u \cdot v = \begin{bmatrix} -4 \\ 8 \end{bmatrix} \begin{bmatrix} 6 \\ 3 \end{bmatrix}$

$= -4 \times 6 + 8 \times 3$

$= -24 + 24$

$= 0.$

04 $u \cdot v = 0$. u & v are prependicular to each other.