Quiz 1: Units 1 & 2
Introduction to Artificial Intelligence

18 September 2026

Duration: 50 Minutes
Maximum Marks: 20

Question 1 (10 Marks) – AI Foundations

(a) Differentiate Artificial Intelligence, Machine Learning, and Deep Learning with suitable civil engineering examples. **(6 Marks)**

(b) Explain the complete Data Science Lifecycle with a neat flow diagram. **(6 Marks)**

(c) Compare Supervised, Unsupervised and Reinforcement Learning. Give one engineering application of each. **(6 Marks)**

(d) Explain any two ethical challenges of AI in infrastructure planning. **(3 Marks)**

(e) Briefly explain the role of Foundation Models and Large Language Models (LLMs) in engineering practice. **(4 Marks)**

Question 2 (10 Marks) – Statistics & EDA

A rain gauge recorded the following daily rainfall (mm):

Day	1	2	3	4	5	6	7	8	9	10
Rainfall	12	18	15	22	28	35	30	26	40	24

(a) Compute the following:

- Mean
- Median
- Range
- Variance
- Standard Deviation

(b)Arrange the rainfall values in ascending order and compute

- Q1
- Q3
- IQR

Determine whether any outlier exists using the **1.5 × IQR rule**.

(c) State four important objectives of Exploratory Data Analysis before developing an ML model.