

Pandit Deendayal Energy University
Department of Civil Engineering
Assignment 1
Introduction to Artificial Intelligence (24CV201T)

Total Questions: 10

Submission Deadline: 30 October 2026

Submission Format: Handwritten submissions only.

Instructions

1. Answer all questions in your own words.
2. Support your answers with suitable diagrams, examples, or case studies wherever applicable.
3. Do not copy directly from AI tools or websites. Proper references must be provided if external sources are used.
4. Each answer should be approximately **200–400 words** unless otherwise specified.
5. Neat presentation and technical accuracy will be considered during evaluation.

Unit 4 – Advanced Modeling and Civil Engineering Applications

Q31. Compare Linear Regression and Logistic Regression. Discuss suitable engineering applications of each.

Q32. Explain the working principle of Decision Trees. Discuss their advantages and disadvantages.

Q33. What is Random Forest? Explain why it generally performs better than a single Decision Tree.

Q34. Explain the K-Nearest Neighbors (KNN) algorithm. Discuss how the choice of K affects model performance.

Q35. Describe the Naive Bayes algorithm. State its assumptions, strengths, and limitations.

Q36. Compare K-Means Clustering and Hierarchical Clustering. Discuss appropriate engineering applications for both.

Q37. Differentiate between Raster and Vector geospatial data structures. Provide practical examples.

Q38. Explain how Remote Sensing, GIS, and Artificial Intelligence can be integrated for solving engineering problems.

Q39. Discuss AI-based applications in Urban Heat Island mapping, Landslide susceptibility mapping, and River Change Detection.

Q40. Discuss future opportunities and challenges of Artificial Intelligence in Civil Engineering. Include technical, ethical, and societal perspectives.