MANIPAL INSTITUTE OF TECHNOLOGY
BENGALURU
(A constituent unit of MAHE, Manipal)

LMS QUIZ
VII-SEMESTER (CSE Core)
MACHINE LEARNING (CSE_4032)

Duration: 5 minutes

Student name	Reg no.	Section	Semester

Q NO.	Question	Marks
Q1	Question: Select all statements that are true. Which of the following best highlights a limitation of inductive learning? A. Inductive learning requires rules to be explicitly programmed before training begins. B. Inductive learning never requires assumptions. C. Inductive learning guarantees perfect generalization if enough training data is available. D. **Inductive learning infers general rules from specific examples, which may lead to overfitting if data is noisy.**	1M
Q2	Select all statements that are true. Which of the following best explains the analytical difference between Euclidean and Manhattan distance? A. Euclidean distance sums absolute differences across dimensions, while Manhattan distance squares them. B. **Euclidean distance is more sensitive to large coordinate differences because it squares them, while Manhattan distance grows linearly with differences.** C. Manhattan distance always produces smaller values than Euclidean distance in high dimensions. D. Euclidean and Manhattan distance yield identical results regardless of dimensionality.	1M
Q3	⌄ Unsupervised learning, no prior labels required. ⌄ Typically reduces dimensionality of data (e.g., via PCA-like transformations). ⌄ .Extracts co-occurrence patterns expressed as rules ($X \rightarrow Y$). ⌄ Finds hidden structure by grouping based on similarity/distance. 1. Association Analysis 2. Cluster Analysis 3. Both 4. Neither	1M
Q4	Match the **choice of k** with its general effect on overfitting vs. underfitting: ⌄ Balance between bias and variance, better generalization ⌄ High variance, low bias, risk of overfitting ⌄ High bias, low variance, risk of underfitting ⌄ Classifies all inputs as the majority class 1. Very small k 2. Very large k 3. Optimal k (moderate) 4. $k \rightarrow \infty$	1M

Q5	Select all statements that are true. Identify the true analytical distinctions between inference and causality in Bayesian Belief Networks: **A. Inference answers probabilistic queries such as P(X | Evidence).** **B. Causality in Bayesian Belief Networks requires interpreting directed edges under a causal framework, not just conditional dependence.** **C. Inference can be exact or approximate, depending on complexity.** D. Inference and causality are interchangeable because both rely on Bayes' rule.	**1M**

Question	Q1	Q2	Q3	Q4	Q5
Answer	D	B	3 4 1 2	3 1 2 4	A,B,C