


RAN-2111040103010003
MCA (Sem. - III) Examination November - 2025
Machine Learning (Paper - 301)
Time: 3 Hours]
[Total Marks: 70
સૂચના : / Instructions

(1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.

Fill up strictly the above details on your answer book.

Seat No.:

--	--	--	--	--	--

Student's Signature

Q. 1. Answer the following questions. (14)

- A. How do you evaluate the performance of a Machine Learning model? Mention any two metrics. [06]
- B. What is Data Wrangling? Explain its goal and importance in the context of Machine Learning. [05]
- C. Discuss model overfitting and underfitting. [03]

Q. 2. Answer the following questions. (14)

- A. Explain the concept of Gradient Descent and explain logistic regression in detail. [06]

OR

- Explain, how does Naive Bayes Classifier works?
- B. Describe decision trees classifier. [05]
- C. What is the K-nearest Neighbor (KNN) algorithm? How does it classify a new data point? [03]

Q. 3. Answer the following questions. (14)

- A. Define clustering. Explain the process of Hierarchical Clustering. [06]
- B. What are the main differences between K-means and Hierarchical clustering algorithms? [05]

OR

- Explain FP-growth with an example.
- C. Define Association Rule Learning and mention its use in data mining. [03]

Q. 4. Answer the following questions. (14)

- A. Describe the working of a Feed forward Neural Network with an example. [06]

OR

- Describe the architecture of a Neural Network. What is bias in NN?
- B. Compare sigmoid and tank activation functions with their uses. [05]
- C. Explain the function of activation functions in Neural Networks, Differentiate between ReLU and leaky ReLU. [03]

- Q. 5. Answer the following questions. [14]**
- A. What are some common applications where Neural Networks outperform traditional machine learning algorithms? [06]
 - B. Discuss the importance of the loss function in a Neural Network. [04]
 - C. What challenges might one face during cluster selection in clustering algorithms? [04]
-