PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
M.Tech. Winter 2019 - 20 Examination

Semester: 1   **Date: 18/12/2019**
Subject Code: 203202130   **Time: 10:30am to 1:00pm**
Subject Name: Machine Learning   **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 A) Describe Overfit, Underfit and Best Fit with example.   **(05)**

   B) What are the advantages and applications of deep learning?   **(05)**

   C) Explain Supervised Learning and Unsupervised Learning.   **(05)**

Q.2 **Answer the following questions**. (Attempt any three)   **(15)**

   A) Give the Difference between AI, Deep Learning and ML

   B) Explain role of kernel methods to handle linearly non-separable data.

   C) Explain Matrix Factorization with example.

   D) Explain Ensemble Methods.

Q.3 A) What do you mean by Gain and Entropy? How is it used to build the Decision tree in algorithm? **(07)**

   Illustrate using an example.

   B) Explain Back Propagation in detail   **(08)**

<div align="center">OR</div>

   B) Explain Sparse Modeling and Estimation with suitable Example.   **(08)**

Q.4 A) Explain Bayesian Learning and Bayesian inference.   **(07)**

<div align="center">OR</div>

   A) Apply Naïve Bayes Classifier on below Data set to classify a **Red Domestic SUV either YES or** **(07)**
   NO.

Example No.	Color	Type	Origin	Stolen?
1	Red	Sports	Domestic	Yes
2	Red	Sports	Domestic	No
3	Red	Sports	Domestic	Yes
4	Yellow	Sports	Domestic	No
5	Yellow	Sports	Imported	Yes
6	Yellow	SUV	Imported	No
7	Yellow	SUV	Imported	Yes
8	Yellow	SUV	Domestic	No
9	Red	SUV	Imported	No
10	Red	Sports	Imported	Yes

   B) Answer the following questions: **(08)**

   1. Give the Difference: Eager Learner and Lazy Learner

   2. Give one application based on IOT and machine learning techniques.