

Total No. of Questions:08

M.Tech. (CSE Engg)E-I (2018 Batch) (Sem.-1) MACHINE LEARNING

Subject Code :MTCS-105-18 M.Code :75155

Time: 3 Hrs. Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

- 1. Attempt any FIVE questions out of EIGHT questions.
- 2. Each question carriesTWELVE marks.
 - 1. a. What is dimensional reduction? How is it used in machine learning?
 - b. Explain:
 - i. PCA with suitable examples
 - ii. Kernel PCA
 - 2. a. Explain the principle of the gradient descent algorithm. Accompany your explanation with a diagram.
 - b. Prove that the LMS training rule performs a gradient descent to minimize the cost/error function E.
 - 3. Explain how back propagation algorithm works for multilayer feed forward network.
 - 4. Consider the following set of training example:

Instance	Classification	a1	a2
1	+	T	T
2	+	T	T
3	-	T	F
4	+	F	F
5	-	F	T
6	-	F	T

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- a. What is the entropy of this collection of training example with respect to the target function classification?
- b. What is the information gain of a2 relative to these training examples?
- 5. How is Naive Bayes algorithm useful for learning and classifying text?
- 6. Write a note on the IOT applications that use machine learning. Explain with suitable examples.
- 7. Explain:
 - a. Penalty and award in Reinforcement learning
 - b. Graphical Models in Scalable Machine Learning
- 8. Write a note on Ensemble machine learning. Explain with concrete examples.

NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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