Please check that this question paper contains_ 09 questions and 02 printed pages within first ten minutes.

MORNING
04 OCT 2023

[Total No. of Questions: 09] [Total No. of Pages: 02]
Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 6th
Name of Subject: Introduction to Machine Learning
Subject Code: PCIT-114
Paper ID: 17206

Detail of allowed codes/charts/tables etc. Nil
Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Distinguish between supervised and unsupervised learning.
b) What are the main objectives of machine learning?
c) Point out any example of a simple linear regression.
d) What is K value in KNN?
e) Why defuzzification is required?
f) Write the difference between testing and training data.

Part – B **[Marks: 04 each]**

Q2. Difference between Machine Learning and traditional programming

Q3. Describe Support Vector Machine. How the vector developed in the training pattern?

Q4. Define multilayer perceptron. How a multilayer perceptron solve XOR problem?

Q5. Discuss the major drawbacks of K-nearest Neighbour learning Algorithm and how it can be corrected

Q6. Discuss the various steps to create a self organized map.

Q7. Define the following terms: Fuzzification, Rules, Inference engine and defuzzifier.

P.T.O.

Part – C **[Marks: 12 each]**

Q8. Compare a) K means clustering with Hierarchical Clustering Techniques b) instance based learning vs. model based learning.

OR

Describe the significance of Kernel functions in SVM. List any two kernel functions. List the advantages of SVM and how optimal Hyperplane differ from Hyperplane.

Q9. What are the benefits of pruning in decision tree induction? Explain different approaches to tree pruning? Compare linear regression model and logistic regression model

OR

Explain the concept of confusion matrix. Assume 10000 patients get tested for flu; out of them, 9000 are actually healthy and 1000 are actually sick. For the sick people, a test was positive for 620 and negative for 380. For the healthy people, the same test was positive for 180 and negative for 8820. Construct a confusion matrix for the data and compute the precision and recall for the data.

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