Charotar University of Science and Technology [CHARUSAT]
Faculty of Technology and Engineering
Department of Computer Science & Engineering
Subject: CS360 Machine Learning
2nd Unit Test

Semester: 6th   **Maximum Marks: 30**
Date: 03/04/2023 (Monday)   **Time: 9:30 am to 10:30 am**

Instructions:
(i) Attempt **all** the questions.
(ii) Figures to the right indicate **full** marks.
(iii) Make suitable assumptions and draw neat figures wherever if required.
(iv) Answer the following questions:

1   What is Deep Learning? Differentiate Machine Learning and Deep Learning.   **[04]**

2   Give an example of linear and non-linear data pictorially. How non-linear data can be classified using SVM?   **[03]**

3   What is the use of Convolutional Neural Network (CNN)? Explain the components of CNN. Write at least two applications of it.   **[05]**

4   Draw a neural network of the following scenario.   **[03]**

There is a car company which buy-sell old cars. Car company owner wants to make ML system which can classifiy the car condition in three categories bad, good, and very good. Owner provides number of seats, model year, wheel size, interior type, and car body as inputs to the system to classify.

5   For the following set of transactions, find all frequent itemsets using the Apriori Algorithm having a support of 60%.   **[05]**
  1. bread, butter, paneer, sugar
  2. bread, butter, milk, water
  3. bread, paneer
  4. bread, bread, butter, water
  5. sugar, bread, water
  6. bread, water, sugar, milk, paneer

6   A hospital wants a system which can identify whether a patient has heart disease based on their clinical and demographic characteristics. Write a case study to build an intelligent system.   **[05]**

7   Find the 2 cluster using following data by k-Means algorithm with Euclidean Distance. Also mention the final centroid values.   **[05]**

A	2,3
B	15,5
C	13,8
D	3,6
E	8,8
F	4,5
G	10,5

OR

7   Perform hierarchical clustering and plot the dendogram to visualize it. Data: 1, 1.5, 5, 3, 4, 3. Use Euclidian distance and single-linkage method. Show two clusters from the dendogram.   **[05]**

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