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BCA (Semester – VI)
EXAMINATION NOVEMBER 2023
Data Science Concepts

[Time: 2 Hours]   [Max. Marks:60]

Instructions: 1. Question 1-6 are compulsory
                          2. Figures to the right indicate full marks.

Q1 A. Match the following: 5x1=05

Column A		Column B	
i.	Market Basket Analysis	a.	Uses Majority Voting or Average,
ii.	Data Visualisation	b.	Correlation Matrix
iii.	Random Forest	c.	Uses Activation Function to produce output.
iv.	Artificial Neural Network	d.	Apriori Algorithm.
v.	Filter Method	e.	Pictorial representation of data.

B. Define the following: 5x1=05
   i.   Supervised Learning
   ii.   Feature Importance
   iii. Regression
   iv.   Association Rule Mining
   v.   Hypothesis Testing

Q2   A. What is Outliers Management?   02
         B. Explain Logistic Regression.   03
         C. State the K-Means clustering algorithm. Using the following dataset   05
            create clusters if K-2 and initial values of k_1-5 and k_2=8.
            Data Points = [4, 12, 6, 2, 7, 5, 8]

Q3   A. List any 2 disadvantages of Decision Trees.   02
         B. What is Reinforcement Learning?   03
         C. Explain Naïve Bayes Classifier Algorithm.   05

Q4   A. What is Data Analysis?   02
         B. Explain the terms Support and Confidence using the dataset given below.   03
            Customer 1: Apples, Oranges, Grapes
            Customer 2: Oranges, Apples, Gum
            Customer 3: Oranges, Bananas, Grapes
            Customer 4: Gum, Bananas, Bread
            Customer 5: Apples, Oranges, Bread

         C. Explain the Bagging Ensemble Technique.   05

Q5   A. Give 2 points of difference between Data Analysis and Data Analytics.   **02**
          B. Define Boosting. State the Boosting Algorithm.   **03**
          C. What is Machine Learning? State the 4 features of Machine Learning.   **05**

Q6   A. Give 2 points of difference between K-Means and K-Medoid.   **02**
          B. List any 3 advantages of Features Selection.   **03**
          C. Explain the K-Nearest Neighbour Algorithm.   **05**