Unsupervised Learning

Unit 1

* Indicates required question

1. **Email** *

    _____

2. **Which of the following is a characteristic of unsupervised learning?**   * 1 point

    Mark only one oval.

    ◯ Requires labeled data

    ◯ Works only with regression tasks

    ◯ Finds hidden patterns in data without labels

    ◯ Only used for classification

3. **Example of unsupervised learning is:** *   1 point

    Mark only one oval.

    ◯ Linear regression

    ◯ Decision trees

    ◯ K-Means clustering

    ◯ Logistic regression

4. **Which of the following is NOT an application of unsupervised learning?** * 1 point

Mark only one oval.

◯ Market basket analysis

◯ Customer segmentation

◯ Spam email classification

◯ Anomaly detection

5. **Unsupervised learning differs from supervised learning mainly in:** * 1 point

Mark only one oval.

◯ Data size

◯ Use of labels

◯ Use of algorithms

◯ Error calculation method

6. **Clustering is considered as:** * 1 point

Mark only one oval.

◯ Regression task

◯ Classification task

◯ Machine learning task for grouping similar data

◯ Dimensionality reduction

7. **Partitioning methods in clustering are mainly used for:** *   1 point

Mark only one oval.

   ◯ Dividing data into predefined clusters

   ◯ Creating hierarchical trees

   ◯ Detecting anomalies

   ◯ Generating rules

8. **Which algorithm belongs to hierarchical clustering?** *   1 point

Mark only one oval.

   ◯ K-means

   ◯ DBSCAN

   ◯ Agglomerative clustering

   ◯ Linear regression

9. **DBSCAN clustering is mainly useful for:** *   1 point

Mark only one oval.

   ◯ Only spherical clusters

   ◯ Clusters of arbitrary shape

   ◯ Predefined number of clusters

   ◯ Reducing dimensionality

10. **Density-based clustering technique groups points based on:** * 　1 point

Mark only one oval.

○ Distance from centroid

○ Statistical probabilities

○ Density of data points in a region

○ Similarity of labels

11. **The main drawback of K-means clustering is:** * 　1 point

Mark only one oval.

○ Handles large datasets efficiently

○ Requires specifying number of clusters in advance

○ Works only on categorical data

○ Can find non-linear boundaries

12. **Biclustering differs from traditional clustering in that it:** * 　1 point

Mark only one oval.

○ Groups rows only

○ Groups both rows and columns simultaneously

○ Works only on time series data

○ Cannot handle missing values

13. Spectral co-clustering is often applied to: *   1 point

Mark only one oval.

◯ Image compression

◯ Document clustering

◯ Classification

◯ Regression

14. Which technique is widely used for gene expression data   * 1 point
analysis?

Mark only one oval.

◯ K-means

◯ Spectral biclustering

◯ Linear regression

◯ Decision trees

15. Association rule learning is mainly used for: *   1 point

Mark only one oval.

◯ Classification

◯ Regression

◯ Market basket analysis

◯ Anomaly detection

16. **Which of the following is an example of an association rule?** * 1 point

Mark only one oval.

◯ If rainfall is high → crops grow faster

◯ If {milk, bread} → {butter}

◯ If x > 5 → y = 2x

◯ If A = 1 → B = 0

17. **In association rules, support measures:** * 1 point

Mark only one oval.

◯ Probability of occurrence of an itemset

◯ Conditional probability of rule

◯ Correlation between items

◯ Error rate

18. **In association rules, confidence is defined as:** * 1 point

Mark only one oval.

◯ Probability of X and Y together

◯ Probability of Y given X

◯ Support divided by lift

◯ Rule accuracy

19. **The Apriori algorithm is used to:** *   1 point

Mark only one oval.

◯ Find clusters

◯ Generate association rules

◯ Reduce dimensions

◯ Classify data

20. **Which property does Apriori algorithm use to reduce**   * 1 point
    computation?

Mark only one oval.

◯ Density estimation

◯ Down-sampling

◯ Anti-monotonicity property

◯ Dimensionality reduction

21. **Which metric measures the strength of association between**   * 1 point
    items beyond chance?

Mark only one oval.

◯ Support

◯ Confidence

◯ Lift

◯ Entropy

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