Final Exam

Started: May 7 at 1:59pm

Quiz Instructions

- The exam on **modules 7, 8, 9, 10, 11 and 12.**
- The exam will be available on **Monday May 07, 2024 from 1:00 PM to 5:00 PM**.
- You need to answer **38 MCQs** with **1 point** for each + **4 Short questions** with **3 points** for each.
- You will have only **75 minutes** to complete your exam in **one sitting.**

Question 1 1 pts

What are general limitations of back propagation rule?

- ○ all of the mentioned
- ○ local minima problem
- ○ scaling
- ○ slow convergence

Question 2 1 pts

The network that involves backward links from output to the input and hidden layers is called as _____.

- ○ self organizing maps
- ○ recurrent neural network
- ○ perceptrons
- ○ multi layered perceptron

Question 3 1 pts

What is meant by generalized in statement “backpropagation is a generalized delta rule” ?

○
because delta rule can be extended to hidden layer units

○
it has no significance

○
because delta is applied to only input and output layers, thus making it more simple and generalized

○
none of the mentioned

Question 4 1 pts

Layers between the input and output layers are known as:

○
Output layer

○
Hidden layer

○
Resultant layer

○
Multilayer

Question 5 1 pts

In feed- forward networks, the connections between layers are _____ from input to output.

○
Directional

○
Bidirectional

○
Multidirectional

○
Unidirectional

Question 6 1 pts

What is perceptron?

○
a double layer auto-associative neural network

○
a neural network that contains feedback

○
an auto-associative neural network

○
a single layer feed-forward neural network with pre-processing

Question 7 1 pts

For SVM, which options are correct?

○
Support vectors are data points that are closer to the hyperplane and influence the position and orientation of the hyperplane

○
Support vectors are data points that are far away from the hyperplane and influence the position and orientation of the hyperplane

○
None of the mentioned.

○
Deleting the support vectors won't change the position of the hyperplane

Question 8 1 pts

In ROC chart the proportion of false positive fp is on _____ and the proportion of true positive tp is on _____

○
The vertical axis, the horizontal axis

○
The horizontal axis, the vertical axis

○
The vertical axis, the y-axis

○
The horizontal axis, the x-axis

Question 9 1 pts

The maximum margin classifier is associated with which of the following:

Linear regression

Logistic regression

Support vector machine

Decision tree

Question 10 1 pts

If x1, x2 are independent variables and y the dependent variable, which of the following represents a linear regression model?

y = a0 + a1x1 + a2x22

y = a0 + a1x12 + a2x2

y = a0 + a1/x1 + a2/x2

y = a0 + a1x1 + a2x2

Question 11 1 pts

ROC in performance metrics stands for?

Revise operating characteristic

Remote operating characteristic

Receiver operating characteristic

Reverse operating characteristic

Question 12 1 pts

The effectiveness of an SVM depends upon:

Soft Margin Parameter C

Kernel Parameters

All of the mentioned

Selection of Kernel

Question 13 1 pts

Which of the following would be appropriate for a data mining algorithm aimed at discovering which groups of products consumers would tend to purchase together?

Decision trees

Classification rules

Association rules

Decision rules

Question 14 1 pts

if none of its immediate supersets has support count as X, then X will be:

Closed frequent itemset

Maximal itemset

Closed itemset

Maximal frequent itemset

Question 15 1 pts

Which of the following describes a strategy of frequent Itemset generation?

Reduce size of the number of transactions as the size of itemset increases

Use efficient data structures to store the candidates or transactions

Use pruning techniques to reduce the number of candidates

All of the mentioned

Question 16 1 pts

Which of the following is not an example of frequent pattern analysis?

Can we predict the winner of match?

What kinds of DNA are sensitive to this new drug?

Can we automatically classify web documents?

What are the subsequent purchases after buying a PC?

Question 17 1 pts

The analysis performed to uncover the interesting statistical correlation between associated -attributes value pairs are known as the _____.

Mining of correlation

Mining of asociation

All of the mentioned

Mining of clusters

Question 18 1 pts

Which of the following best describes the Apriori principle?

When the anti-monotone property of support holds on given itemset

If an itemset is frequent, then all of its subsets must also be frequent

All of the mentioned

Support of an itemset never exceeds the support of its subsets

Question 19 1 pts

HAC stands for ----.

Hierarchical aggregative clustering

Heightened agglomerative clustering

Hierarchical agglomerative clustering

Hierarchical absolute clustering

Question 20 1 pts

Which clustering method develops a subdivision of the given dataset into a predetermined number K of non empty subset?

Hierarchical method

Partition method

Grid method

Density-based method

Question 21 1 pts

Which of the following statement is NOT true about clustering?

It groups the data

It is an unsupervised learning technique

It uses clusters for data analysis

It is a supervised learning technique

Question 22 1 pts

Which statement is not true about cluster analysis?

- Objects in each cluster tend to be similar to each other and dissimilar to objects in the other clusters.
- Cluster analysis is a technique for analyzing data when the criterion or dependent variable is categorical and the independent variables are interval in nature.
- Groups or clusters are suggested by the data, not defined a priori.
- Cluster analysis is also called classification analysis or numerical taxonomy.

Question 23 1 pts

Which one of the following can be considered as the final output of the hierarchal type of clustering?

- Assignment of each point to clusters
- None of the mentioned
- Finalize estimation of cluster centroids
- A tree which displays how the close thing are to each other

Question 24 1 pts

_____ is a clustering procedure characterized by the development of a tree-like structure.

- K-Means clustering
- K-Medoids clustering
- Non-hierarchical clustering
- Hierarchical clustering

Question 25 1 pts

From the following which method is not the clustering method?

- Hierarchical
- Partition
- Divide-and-conquer based
- Density based

Question 26 1 pts

A _____ is a tree diagram for displaying clustering results. Vertical lines represent clusters that are joined together.

- Scatter plot
- Tree plot
- Dendrogram
- Histogram

Question 27 1 pts

One of the drawbacks of using density methods in anomaly detection is:

- Sometime it can be sensitive to variations in density
- Density may become less meaningful in high-dimensional space.
- It may be hard to estimate the true density distribution for high dimensional data.
- All of the mentioned

Question 28 1 pts

For the purpose of anomaly detection, in the statistical-based approaches we need to -----.

- reduce data to lower dimensional data
- All of the mentioned
- use certain kernel function on the given data to construct such a model
- assume data comes rom normal distribution

Question 29 1 pts

One of the drawbacks of using statistical methods in anomaly detection is:

- It may be hard to estimate the true distribution for high dimensional data.
- Density may become less meaningful in high-dimensional space.
- all of the mentioned
- Sometime it can be Can difficult to decide on number of clusters

Question 30 1 pts

Data may contain erroneous or anomalous values, which are usually referred to as_____.

- Reduction
- Inconsistencies
- Outliers
- Noise

Question 31 1 pts

Which of the following will be Euclidean Distance between the two data point A(1, 3) and B(2, 3)?

4

8

1

2

Question 32 1 pts

One reason of anomaly detection is:

Normal variations can be seen on data

Data coming from different classes

All of the mentioned

Errors from collecting data

Question 33 1 pts

Which of the following is one of the purposes of the visualization?

It helps find interesting regions for any further analysis.

It assists to search for trends and relationships among data.

It can provide qualitative overview of large data sets

All of the mentioned

Question 34 1 pts

Which of the following is a new trend in data mining?

All of the mentioned

Scalable data mining methods

A Web mining

Invisible data mining

Question 35 1 pts

Which of the following is not type of data mining in recommender systems?

Mining of spatiotemporal, biological, diverse semantics and relationships

Model-based method uses a collection of ratings to learn a model

Extract from known to unknown ratings to predict user-item combinations

All of the mentioned

Question 36 1 pts

Which of the following describes an example of the factor analysi?

For given experimental data, one analyzes the data for two or more populations described by a numeric response variable and one or more categorical variables (factors)

All of the mentioned

For special type of data, one attempts to determine several discriminant functions (factors) that discriminate among the groups defined by the response variable

For certain data, researcher can indirectly measure other quantities that reflect the factor of interest

Question 37 1 pts

Which of the following is not an example application of data mining in science and engineering?

Mining of spatiotemporal, biological, diverse semantics and relationships C)

All of the mentioned

Use sequential pattern mining to investigate changes in customer consumption or loyalty

Use data mining in monitoring systems, software bugs and network intrusion

Question 38 1 pts

Which of the following is not part of Web Mining:

Structure Mining

Usage Mining

Content Mining

Database Mining

Question 39 3 pts

Discuss the basic difference between the **agglomerative** and **divisive** hierarchical clustering algorithms and mention which type of hierarchical clustering algorithm is more commonly used.

Edit View Insert Format Tools Table

12pt Paragraph

p 0 words

Question 40 3 pts

Clustering has been popularly recognized as an important data mining task with broad applications. Give **one application example** for each of the following cases:

a) An application that takes clustering as a **major** data mining function.

b) An application that takes clustering as a **preprocessing tool for data preparation** for other data mining tasks.

Edit View Insert Format Tools Table

12pt Paragraph

p 0 words

Question 41 3 pts

Demonstrate how the **perceptron model** can be used to represent the **OR** functions between a pair of Boolean variables.

Edit View Insert Format Tools Table

12pt Paragraph

p 0 words

Question 42 3 pts

Consider a transaction dataset that contains five items, {A, B, C, D, E}. Suppose **the rules {A, B} → C has the same confidence as {A, B} → D**, which one of the following statements are true or not, and why:

1. a) The confidence of the {A, B} → {C, D} is the same as the confidence of {A, B} → {C}.
2. b) All transactions that contain {A, B, C} also contain {A, B, D}.

Edit View Insert Format Tools Table

12pt Paragraph

p 0 words

Not saved Submit Quiz