

Chapter 13

Knowledge Discovery Systems

True-False Questions

1. Knowledge discovery systems rely on mechanisms and technologies that support the combination and socialization processes.

Answer: True Difficulty: Easy Reference: p. 249

2. Knowledge discovery is a relatively new process and started in the early 1990's.

Answer: False Difficulty: Easy Reference: p. 249

3. Knowledge mechanisms facilitate combination and knowledge technologies facilitate socialization.

Answer: False Difficulty: Medium Reference: p. 250

4. Knowledge creation systems may be enabled by the use of data mining.

Answer: True Difficulty: Easy Reference: p. 250

5. Creative brainstorming enables innovators to identify perceived problems.

Answer: False Difficulty: Medium Reference: p. 252

6. The first step in the creative brainstorming process is to establish the ground rules.

Answer: True Difficulty: Medium Reference: p. 252

7. Brainstorming if done properly can help engender lateral thinking.

Answer: True Difficulty: Easy Reference: p. 252-253

8. In brainstorming, ideas that are too wild or silly must be discarded immediately.

Answer: False Difficulty: Easy Reference: p. 252-253

9. DM is defined to include the whole process of knowledge discovery including the application of KDD techniques.

Answer: False Difficulty: Hard Reference: p. 254

10. DM techniques have been applied to a large number of business problems across a wide variety of business domains.

Answer: True Difficulty: Easy Reference: p. 254

11. Discovering knowledge may mean different things to different organizations.
Answer: True Difficulty: Easy Reference: p. 258
12. CRISP-DM is a KDD application in the banking and automotive industries.
Answer: False Difficulty: Medium Reference: p. 258
13. According to the CRISP-DM hierarchical process model, preparing data is the first step towards performing knowledge discovery at a business.
Answer: False Difficulty: Medium Reference: p. 258-260
14. Selecting variables and the data sample set is the first step in data preparation.
Answer: True Difficulty: Medium Reference: p. 260
15. When deploying a knowledge discovery system to ten or more users, tenfold validation should be the deployment method.
Answer: False Difficulty: Hard Reference: p. 261
16. Business organizations can profit greatly from data mining the web.
Answer: True Difficulty: Medium Reference: p. 262
17. Eighty percent of the world's online content is in text-based format.
Answer: True Difficulty: Easy Reference: p. 264
18. Web mining is exactly like any other data mining application.
Answer: False Difficulty: Easy Reference: p. 264
19. Operational CRM systems attempt to uncover customer intelligence to better serve the customer.
Answer: False Difficulty: Medium Reference: p. 266
20. Challenges to knowledge discovery utilization are being resolved through the increasing availability of verticalized solutions.
Answer: True Difficulty: Easy Reference: p. 269

Multiple Choice Questions

21. What is one way that knowledge is discovered?
- a. Externalizing tacit knowledge into an explicit form.
 - b. Internalizing explicit knowledge into tacit form.
 - c. Sending explicit documents to fellow workers.
 - d. Using the WWW for communicating new ideas explicitly.
 - e. Finding interesting patterns in explicit observations.

Answer: e **Difficulty:** Medium **Reference:** p. 249

22. What two processes are supported by knowledge discovery systems?
- a. Combination and socialization.
 - b. Direction and routines.
 - c. Externalization and internalization.
 - d. Exchange and socialization.
 - e. Combination and exchange.

Answer: a **Difficulty:** Medium **Reference:** p. 249

23. Knowledge creation through group interactions at research conferences or brainstorming sessions utilizes which knowledge process?
- a. Combination.
 - b. Exchange.
 - c. Internalization.
 - d. Socialization.
 - e. Sharing.

Answer: d **Difficulty:** Easy **Reference:** p. 250

24. Brainstorming camps in an informal and relaxed setting outside of the normal work environment serve as a medium for knowledge creation and _____.
- a. identifying knowledge hoarders
 - b. determining the type of KB system to develop
 - c. sharing knowledge and building trust
 - d. identifying the principle knowledge stakeholders
 - e.

Answer: c **Difficulty:** Medium **Reference:** p. 250

25. What is the term used to describe entirely different approaches to solving a problem?
- a. Knowledge discovery.
 - b. Lateral thinking.
 - c. Knowledge capture.
 - d. Extrapolative reasoning.
 - e. Knowledge creation.

Answer: b **Difficulty:** Medium **Reference:** p. 253

26. What is one of the significant advantages of the creative brain storming approach?
- a. Identifying the real problem.
 - b. Removing the customer from the solution process.
 - c. Transferring problem solving to an informal setting.
 - d. Identifying perceived problems.
 - e. Quick application of the identified solution.

Answer: a **Difficulty: Medium** **Reference: p. 252-253**

27. What knowledge management method was used by the Westinghouse engineers to figure out that they needed to ship their washing machines upside down?
- a. Brainstorming camps.
 - b. Virtual communities.
 - c. Creative brainstorming.
 - d. Communities of practice.
 - e. Group support systems.

Answer: c **Difficulty: Easy** **Reference: p. 253**

28. Which of the following has helped generate large quantities of data for analysis in knowledge discovery systems?
- a. Conversion of databases for Y2K.
 - b. Integrated DM software tools.
 - c. Increasing availability of computing power.
 - d. Proliferation of e-commerce applications.
 - e. None of the above.

Answer: d **Difficulty: Medium** **Reference: p. 254**

29. Which of the following is not an area where DM has been applied to a business problem for knowledge discovery?
- a. Utilities.
 - b. Banking.
 - c. Insurance.
 - d. Operations management.
 - e. None of the above.

Answer: e **Difficulty: Easy** **Reference: p. 254-255**

30. What DM technique has helped discover products likely to be purchased together?
- a. Artificial neural networks.
 - b. Market basket analysis.
 - c. Induction trees.
 - d. Decision tables.
 - e. Logistic regression.

Answer: b **Difficulty: Medium** **Reference: p. 254**

31. How are ANNs used to perform DM for knowledge discovery in the telecommunications industry?
- a. Perform market basket analysis.
 - b. Schedule system outages.
 - c. Predict churn.
 - d. Determine fraudulent usage.
 - e. Improve direct marketing campaigns.

Answer: c **Difficulty:** Medium **Reference:** p. 255

32. How are relationships between problem attributes that affect the solution represented in an ANN?
- a. By the input variables.
 - b. Through the number of hidden layers.
 - c. By the training algorithm selected.
 - d. In the connection weights.
 - e. None of the above.

Answer: d **Difficulty:** Medium **Reference:** p. 255

33. By the year 1996, _____ of the top U.S. banks were using DM for knowledge discovery.
- a. 100 %
 - b. 95 %
 - c. 75 %
 - d. 50 %
 - e. 34 %

Answer: b **Difficulty:** Medium/Hard **Reference:** p. 256

34. What are the most common and useful application of DM in business domains?
- a. Employee placement.
 - b. Customer relationship management (CRM).
 - c. Detection of financing risk and fraud.
 - d. Product marketing and sales.
 - e. Diagnosis.

Answer: d **Difficulty:** Medium **Reference:** p. 256

35. According to the CRISP-DM process model for knowledge discovery, what is the first requirement for performing knowledge discovery at an organization?
- a. Understand the business problem.
 - b. Prepare the data.
 - c. Select a DM knowledge technology.
 - d. Align knowledge methods with knowledge applications.
 - e. Understand the data.

Answer: a **Difficulty:** Easy **Reference:** p. 258

36. Which of the following is not a step in the data understanding process?
- a. Collection.
 - b. Exploratory analysis.
 - c. Description.
 - d. Quality and verification.
 - e. None of the above.

Answer: e **Difficulty: Medium** **Reference: p. 259-260**

37. Which of the following is not a step in the data preparation process?
- a. Selecting predictor variables.
 - b. Determining and excluding data outliers.
 - c. Formatting data to fit the DM model.
 - d. Data consolidation and integration.
 - e. Selecting the set of data samples.

Answer: b **Difficulty: Medium** **Reference: p. 260**

38. What is a popular knowledge discovery model validation technique?
- a. Root mean squared error (RMSE).
 - b. K-means clustering.
 - c. N-fold cross-validation.
 - d. Random sampling.
 - e. Correlation coefficients.

Answer: c **Difficulty: Medium** **Reference: p. 261**

39. What is a necessary technology for performing data mining due to the text-based nature of online information?
- a. Statistical analysis of XML and HTML tags.
 - b. Information retrieval.
 - c. Link capture and analysis.
 - d. Probabilistic modeling.
 - e. Natural language processing.

Answer: e **Difficulty: Medium** **Reference: p. 264**

40. What goal of CRM systems results in understanding the customer touch points and customer intelligence to allow better recognition of desired services and needs of the customer?
- a. Integrate common customer viewpoint across all touch points.
 - b. Enable response to complex problems in real-time.
 - c. Derive better ROI from CRM investments.
 - d. Automate the sales force.
 - e. Develop data warehouses.

Answer: a **Difficulty: Medium** **Reference: p. 266**