Chapter 1

1. **What is the primary goal of a Decision Support System (DSS)?**
    a) To fully automate decision-making.
    b) To aid decision-makers in their processes.
    c) To eliminate human involvement in decisions.
    d) To solely collect and store data.
    Answer: b)

2. **Simon's decision-making process includes which three phases?**
    a) Planning, Doing, Checking
    b) Intelligence, Design, Choice
    c) Input, Process, Output
    d) Define, Analyze, Implement
    Answer: b)

3. **Which type of decision is characterized by its repetitive nature but also high risk?**
    a) Ad hoc decisions
    b) Delegated decisions
    c) Big-bet decisions
    d) Cross-cutting decisions
    Answer: d)

4. **What stage of the decision-making process involves evaluating alternatives?**
    a) Intelligence
    b) Design
    c) Implementation
    d) Choice
    Answer: d)

5. **According to Quain (2018), what's the final step in the detailed decision-making process?**
    a) Make the decision
    b) Collect all the information
    c) Evaluate the impact of your decision.

d) Identify the alternatives.
Answer: c)

6. **Which of these is NOT a factor that typically influences the decision-making process?**
a) Government regulations
b) Economic factors
c) The decision-maker's favorite color
d) Technological advancements
Answer: c)

7. **What is the purpose of sensitivity analysis within a model?**
a) To gather primary data
b) To predict future outcomes with certainty.
c) To test the robustness of the model to changes in input.
d) To simplify complex equations.
Answer: c)

8. **Which level of organizational control is concerned with strategic planning?**
a) Operational
b) Tactical
c) Managerial
d) Strategic
Answer: d)

9. **A decision characterized by high uncertainty and a lack of structure is:**
a) Structured
b) Semi-structured
c) Unstructured
d) Programmed
Answer: c)

10. **What is a critical component of a DSS that allows for interaction and presentation of results?**
a) Model Management Subsystem
b) Database Management System
c) User Interface Subsystem
d) Knowledge-Based Subsystem
Answer: c)

11. **Business Intelligence & Data Warehousing:**

12. **What is the primary role of a Data Warehouse in a Business Intelligence system?**
    a) Real-time transaction processing.
    b) Storing and retrieving historical data.
    c) Executing complex mathematical models.
    d) Providing immediate insights.
    Answer: b)

13. **The ETL process in data warehousing involves:**
    a) Evaluating, testing, and loading data
    b) Extracting, transforming, and loading data.
    c) Entering, tabulating, and loading data
    d) Encoding, translating, and loading data
    Answer: b)

14. **A smaller, focused subset of a data warehouse, tailored to specific needs, is called a:**
    a) Data lake
    b) Data mine
    c) Data mart
    d) Data stream
    Answer: c)

15. **What is an Operational Data Store (ODS) primarily used for?**
    a) Long-term historical analysis.
    b) Real-time data processing and updates.
    c) Data mining and predictive modeling.
    d) Data visualization.
    Answer: b)

16. **What does OLAP stand for?**
    a) Online Linear Programming
    b) Offline Analytical Processing
    c) Online Analytical Processing
    d) Offline Linear Programming
    Answer: c)

17. **What type of database is typically associated with OLAP?**
    a) Relational database

b) Multidimensional database

c) NoSQL database

d) Graph database

Answer: b)

18. **Metadata in a data warehouse serves what purpose?**

a) It's the raw data itself.

b) It's used for visualizations.

c) It describes the data within the warehouse.

d) It's used for real-time processing.

Answer: c)

19. **What technology is used for massively parallel processing of large datasets?**

a) Sequential Processing

b) MapReduce

c) Single-threaded processing

d) Linear processing

Answer: b)

20. **A key difference between ERP systems and previous functional systems is:**

a) ERP systems are less integrated.

b) ERP systems are slower to process data.

c) ERP systems offer a centralized source of information.

d) ERP systems are less efficient.

Answer: c)

21. **Descriptive analytics primarily answers which type of question?**

a) What should we do?

b) What will happen?

c) What is happening?

d) Why did it happen?

Answer: c)

22. **Predictive analytics mainly focuses on:**

a) Explaining past events.

b) Forecasting future outcomes.

c) Optimizing current processes.

d) Understanding current trends.

Answer: b)

23. **Prescriptive analytics is primarily concerned with:**
    a) Describing past performance.
    b) Predicting future trends.
    c) Recommending actions to take.
    d) Summarizing data.
    Answer: c)

24. **Which of the following is NOT a typical enabler for prescriptive analytics?**
    a) Optimization algorithms
    b) Simulation models
    c) Data warehousing
    d) Data visualization
    Answer: d)

25. **What distinguishes Big Data from traditional data?**
    a) It is always structured.
    b) It is always small in volume.
    c) It often includes unstructured data in large volumes.
    d) It is easily processed by standard tools.
    Answer: c)

26. **Hadoop Distributed File System (HDFS) is designed for:**
    a) Processing small, structured datasets.
    b) Processing large datasets distributed across multiple nodes.
    c) Real-time transaction processing.
    d) Traditional relational database management.
    Answer: b)

27. **What is a core concept of Artificial Intelligence (AI)?**
    a) Processing only structured data
    b) Imitating human cognitive functions.
    c) Performing only simple calculations
    d) Working only with historical data.
    Answer: b)

28. **A key goal of AI is:**
    a) To replace all human workers
    b) To build machines capable of learning and adapting.

c) To create simple, rule-based systems.

d) To limit computational capacity.

Answer: b)

29. **Which of the following is NOT typically considered a benefit of AI?**

    a) Increased efficiency.

    b) Reduced costs.

    c) Increased human error.

    d) Enhanced decision-making.

    Answer: c)

30. **Weak AI (or narrow AI) is characterized by:**

    a) General problem-solving capabilities

    b) Human-level intelligence.

    c) Focus on a specific task or domain.

    d) Self-awareness.

    Answer: c)

31. **Strong AI (or general AI) is defined by:**

    a) Narrow focus on specific tasks

    b) Human-level or superior intelligence.

    c) Inability to learn or adapt

    d) Dependence on structured data.

    Answer: b)

32. **Augmented intelligence aims to:**

    a) Replace human workers entirely.

    b) Enhance human capabilities using AI.

    c) Create completely autonomous systems.

    d) Limit human involvement in decision-making.

    Answer: b)

33. **Autonomous AI systems:**

    a) Require significant human oversight.

    b) Operate independently within a limited domain.

    c) Are primarily used for descriptive analytics.

    d) Cannot learn or adapt.

    Answer: b)

34. **A major challenge with both analytics and AI is:**

    a) The abundance of high-quality data.

b) The simplicity of the models used.

c) The low cost of implementation.

d) The quality and reliability of data.

Answer: d)

35. **One significant difference between analytics and AI is:**

a) Analytics focuses on the present, AI on the past.

b) Analytics uses qualitative data; AI uses quantitative data.

c) Analytics is primarily about computation, AI is about simulating human thought.

d) AI is always faster than analytics.

Answer: c)

36. **How does the combination of AI and analytics typically improve results?**

a) By making decisions slower and more deliberate.

b) By increasing the cost of processing.

c) By creating more data silos.

d) By producing more comprehensive and accurate results.

Answer: d)

37. **Natural Language Processing (NLP) is primarily used in AI for:**

a) Image recognition.

b) Processing and understanding human language.

c) Machine learning algorithm optimization.

d) Data visualization.

Answer: b)

38. **Machine learning, in the context of AI, is:**

a) A set of predefined rules.

b) The ability of systems to improve their performance based on data.

c) A type of data visualization tool.

d) A method for manual data entry.

Answer: b)

39. **Expert systems in AI rely heavily on:**

a) Random data sampling

b) Machine learning algorithms.

c) A knowledge base of rules and facts.

d) Big data visualization.

Answer: c)

40. **What is a common application area for Robotic Process Automation (RPA)?**

a) Advanced data analysis

b) Automating repetitive tasks in business processes.

c) Developing complex AI models.

d) Designing user interfaces.

Answer: b)

41. **What type of AI system would be used to provide financial investment advice?**

a) Assisted Intelligence system

b) Augmented Intelligence system

c) Autonomous AI system (robo-advisor)

d) Basic AI system

Answer: c)

42. **The "garbage-in, garbage-out" problem in analytics refers to:**

a) The difficulty of cleaning big data.

b) The fact that inaccurate input data leads to unreliable results.

c) The high cost of data acquisition.

d) The complexity of data visualization tools.

Answer: b)

43. **Which type of learning algorithm requires labeled data for training?**

a) Unsupervised learning

b) Reinforcement learning

c) Supervised learning

d) Semi-supervised learning

Answer: c)

44. **What is a significant advantage of a data lake compared to a data warehouse?**

a) Better data governance and security.

b) Easier and faster query processing.

c) Ability to store both structured and unstructured data.

d) Lower implementation and maintenance costs.

Answer: c)

45. **Business Process Management (BPM) is best described as:**
   a) A system for analyzing historical data.
   b) A method for predicting future outcomes.
   c) A methodology for designing, monitoring, and improving business processes.
   d) A technique for data visualization.
   Answer: c)

46. **A key aspect of effective Business Intelligence (BI) implementation is:**
   a) Focusing solely on technical aspects.
   b) Ignoring the business context and strategy.
   c) Aligning BI initiatives with the overall business strategy.
   d) Using only one type of analytics.
   Answer: c)

47. **Which of the following is NOT a typical component of a Business Intelligence (BI) architecture?**
   a) Data warehouse
   b) Data visualization tools
   c) Data mining algorithms
   d) Expert system that makes decisions without human input
   Answer: d)

48. **Bias in AI algorithms is primarily caused by:**
   a) Perfectly balanced and representative training data.
   b) The complexity of the algorithms used.
   c) Insufficient computational power.
   d) Biased or unrepresentative training data.
   Answer: d)

49. **A crucial element for mitigating bias in AI is:**
   a) Using only simple algorithms.
   b) Ignoring ethical considerations.
   c) Ensuring diverse and representative training data.
   d) Limiting the use of AI in decision-making.
   Answer: c)

50. **The development of relational databases significantly impacted decision support systems by:**
   a) Making data storage more complex.

b) Enabling more efficient data retrieval and management.

c) Reducing the need for data analysis.

d) Eliminating the use of models.

Answer: b)

51. **A key aspect of the evolution of decision support systems is the increasing use of:**
    a) Less powerful computers
    b) Simpler data models
    c) Advanced analytics and AI techniques
    d) Manual data entry methods
    Answer: c)

52. **In the context of AI, what does NLP stand for?**
    a) Neural Language Processing
    b) Natural Language Processing
    c) Numerical Language Processing
    d) Network Language Processing
    Answer: b)

53. **Which AI approach focuses on learning through trial and error and rewards?**
    a) Supervised learning
    b) Unsupervised learning
    c) Reinforcement learning
    d) Deep learning
    Answer: c)

54. **A significant challenge in implementing large data warehouse projects is:**
    a) The lack of available data.
    b) The low cost of implementation.
    c) The complexity of data integration and management.
    d) The ease of data visualization.
    Answer: c)

55. **What is a common use of text mining in business analytics?**
    a) Predicting customer churn.
    b) Identifying patterns and trends in unstructured text data.
    c) Optimizing supply chains.

d) Creating dashboards.
Answer: b)

56. **The convergence of AI and analytics is expected to:**
    a) Make decision-making more complex.
    b) Reduce the need for human intervention.
    c) Lead to more effective and efficient decision-making.
    d) Increase costs significantly.
    Answer: c)

57. **What is a potential limitation of using only predictive analytics?**
    a) Inability to understand past trends.
    b) Lack of clear recommendations for action.
    c) Difficulty in handling large datasets.
    d) Limited ability to create visualizations.
    Answer: b)

58. **Which type of AI is most likely to be used for fraud detection?**
    a) Assisted Intelligence
    b) Augmented Intelligence
    c) Autonomous AI
    d) Weak AI
    Answer: c)

59. **What is a major concern about the ethics of AI in decision-making?**
    a) The lack of computational power.
    b) The high cost of implementation.
    c) The potential for bias and unfair outcomes.
    d) The complexity of data visualization.
    Answer: c)

60. **What is a key characteristic of a well-designed dashboard in a BI system?**
    a) Highly complex visualizations.
    b) Cluttered and confusing presentation.
    c) Clear, concise presentation of key performance indicators.
    d) Use of only one data source.
    Answer: c)

61. **In the context of Big Data, what does a data lake often contain?**
    a) Only structured, relational data.
    b) Only historical, pre-processed data.

c) A mixture of structured and unstructured data.

d) Only data from a single source.

Answer: c)