Chapter 2

(1) Which of the following is NOT a core concern of Artificial Intelligence, as described in the chapter?

a) Studying human thought processes

b) Replicating human thought processes in machines

c) Developing algorithms for optimal data storage

d) Representing human thought processes in a computable form

Answer: c

(2) An intelligent agent (IA) primarily distinguishes itself from other software programs through:

a) Its ability to process large datasets.

b) Its autonomous action based on changing environments and stored knowledge.

c) Its utilization of complex algorithms.

d) Its integration with various hardware components.

Answer: b

(3) Machine learning, at its core, focuses on enabling computers to:

a) Execute pre-programmed instructions efficiently.

b) Learn from data and adapt to new situations.

c) Process information faster than humans.

d) Store and retrieve vast amounts of information.

Answer: b

(4) Deep learning differs from regular machine learning primarily in its:

a) Use of more complex algorithms.

b) Ability to handle larger datasets.

c) Focus on mimicking the human brain's structure and function using neural networks.

d) Requirement for more powerful hardware.

Answer: c

(5) The primary purpose of computer vision is to:

a) Enhance the visual display of computer graphics.

b) Enable computers to "see" and interpret images and videos.

c) Create realistic virtual environments.

d) Develop more efficient image compression techniques.

Answer: b

(6) Which is NOT a typical application of computer vision mentioned in the chapter?

a) Robot guidance systems

b) Automated process controls

c) Image generation and manipulation

d) Real-time language translation

Answer: d

(7) Video analytics primarily extends computer vision by:

a) Analyzing video streams for patterns and events.

b) Improving video compression algorithms.

c) Generating realistic 3D video models.

d) Enhancing video display resolution.

Answer: a

(8) A key characteristic of robotic systems within the context of AI is their ability to:

a) Perform repetitive tasks with high precision.

b) Be programmed to execute specific instructions.

c) Combine electromechanical actions with AI-driven decision-making.

d) Interact with physical objects in the real world.

Answer: c

(9) Natural Language Processing (NLP) aims to enable computers to:

a) Translate programming languages into human-readable text.

b) Understand and generate human language.

c) Process and analyze large text datasets.

d) Develop more efficient algorithms for text compression.

Answer: b

(10) Which of the following is NOT a subfield of NLP?

a) Natural language understanding

b) Natural language generation

c) Natural language optimization
d) None of the above. The options a and b are both correct.

Answer: c

(11) A key difference between knowledge acquisition and knowledge representation in expert systems is:
a) Acquisition focuses on gathering knowledge, while representation focuses on organizing and storing it.
b) Acquisition involves human experts, while representation relies on computer algorithms.
c) Acquisition is a one-time process, while representation is ongoing.
d) Acquisition deals with raw data, while representation creates meaningful information.

Answer: a

(12) Which of these is NOT a primary function of an expert system?
a) Generating expert advice.
b) Giving recommendations based on stored knowledge.
c) Performing problem-solving based on rules and logic.
d) Collecting and analyzing real-time sensor data.

Answer: d

(13) Chatbots, as a type of conversational robot, primarily rely on which AI technology?
a) Computer Vision
b) Natural Language Processing
c) Machine Learning
d) Robotics

Answer: b

(14) Cognitive computing systems, like IBM Watson, distinguish themselves by:
a) Their ability to process large datasets.
b) Their use of self-learning algorithms and mimicking human thought processes.
c) Their reliance on pre-programmed rules and logic.
d) Their integration with various hardware components.

Answer: b

(15) Augmented reality, as discussed in the context of AI, primarily focuses on:

a) Creating fully immersive virtual environments.

b) Integrating digital information into the user's real-world experience in real-time.

c) Enhancing computer-generated graphics.

d) Developing more realistic video game environments.

Answer: b

(16) Which of these is NOT a typical use case of AI in Human Resource Management?

a) Talent acquisition and recruitment.

b) Personalized training and development.

c) Real-time employee performance monitoring.

d) Predicting employee attrition.

Answer: c

(17) How does AI assist in talent acquisition, as mentioned in the chapter?

a) By automating the entire hiring process.

b) By using algorithms to match recruiters and job seekers, potentially reducing bias.

c) By conducting virtual interviews with candidates.

d) By replacing human recruiters with AI-powered systems.

Answer: b

(18) Which AI technology is NOT typically used in marketing and advertising?

a) Customer segmentation.

b) Sales forecasting.

c) Robotics process automation.

d) Product recommendations.

Answer: c

(19) In the context of production and operations management, AI is primarily used for:

a) Automating compliance and reducing costs.

b) Designing more aesthetically pleasing products.

c) Improving customer service interactions.

d) Developing creative marketing campaigns.

Answer: a

(20) Which of the following is NOT a benefit of using AI in manufacturing?

a) Increased agility and responsiveness to market changes.

b) Improved product design aesthetics.

c) Automation of compliance processes.

d) Reduction of costs.

Answer: b

(21) Which of the following is a critical driver of the current AI resurgence?

a) Development of more sophisticated algorithms.

b) The availability of large datasets ("Big Data").

c) Advances in computing power (e.g., GPUs).

d) All of the above.

Answer: d

(22) The "AI Tree" diagram in the chapter illustrates:

a) The hierarchical structure of AI algorithms.

b) The various disciplines that contribute to the field of AI.

c) The chronological development of AI technologies.

d) The different types of neural networks used in deep learning.

Answer: b

(23) "Image Generation" is most closely associated with which AI technology from the chapter?

a) Deep Learning

b) Computer Vision

c) Natural Language Processing

d) Robotics

Answer: a (While related to Computer Vision, the *generation* of images is more specifically linked to DL techniques).

(24) "Degenerated Reality," as mentioned in the context of AI technologies, refers to:

a) Creating realistic simulations of real-world environments.

b) Removing or altering elements from a real-world scene in a digital representation.

c) Generating entirely new, synthetic realities.

d) Simulating the degradation of physical objects over time.

Answer: b

(25) Which AI technology is most relevant for enabling "Smart Factories"?

a) Expert Systems

b) Machine Learning

c) Natural Language Processing

d) Robotics combined with IoT (Internet of Things)

Answer: d (While Machine Learning plays a role, the combination of Robotics and IoT is central to the concept of Smart Factories).

(26) "Robo Advisors," as discussed in the chapter, primarily function by:

a) Providing physical assistance in manufacturing environments.

b) Offering automated financial advice and investment management.

c) Acting as virtual customer service agents.

d) Guiding robots in complex tasks.

Answer: b

(27) The chapter mentions "Knowledge Engineers" playing a crucial role in:

a) Developing AI algorithms.

b) Extracting and structuring knowledge from human experts for expert systems.

c) Designing the user interfaces of AI systems.

d) Maintaining the hardware infrastructure for AI applications.

Answer: b

(28) A simple form of knowledge representation in expert systems involves:

a) Complex neural networks.

b) Statistical models.

c) Questions and answers (Q&A).

d) Free-form text descriptions.

Answer: c

(29) Which aspect of AI is most relevant to predicting "potential trouble behavior" at large gatherings, as mentioned in the chapter?

a) Video analytics combined with machine learning

b) Natural Language Processing

c) Robotics

d) Expert systems

Answer: a

(30) The chapter's example of a Walmart stock scanning robot best illustrates which AI application area?
a) Robotics in retail
b) Computer vision in logistics
c) Machine learning in supply chain management
d) Deep learning in customer service

Answer: a

(31) The provided YouTube link about "shopbots" exemplifies which AI technology's application in e-commerce?
a) Natural Language Processing (NLP)
b) Computer Vision
c) Robotics in the form of software agents.
d) Machine Learning for personalized recommendations

Answer: c (Shopbots are a form of software robots/agents, although they may use NLP).

(32) What is the primary goal of "sentiment analysis" in marketing, as mentioned in the chapter?
a) To track customer purchase history.
b) To understand customers' feelings and opinions expressed in text or voice.
c) To segment customers into different demographic groups.
d) To predict future sales trends.

Answer: b

(33) The chapter emphasizes that "Intelligence" is:
a) Easily defined and measured.
b) Primarily a human trait.
c) Not a simple concept and encompasses various types.
d) Best represented by IQ scores.

Answer: c

(34) Which of these is NOT listed as a type of human intelligence in the chapter?
a) Linguistic and verbal
b) Artificial
c) Spatial
d) Musical

Answer: b

(35) "Dynamic pricing," as mentioned in the context of AI in marketing, refers to:
a) Setting fixed prices for products based on market research.
b) Adjusting prices in real-time based on factors like demand and competitor pricing.
c) Offering personalized discounts to individual customers.
d) Using AI to predict future price fluctuations.

Answer: b

(36) Which of the following is NOT a major driver of AI development, according to the chapter?
a) Advances in computing power
b) Availability of large datasets
c) Development of more sophisticated algorithms
d) Increasing public awareness of AI's potential

Answer: d (While public awareness is growing, it's not a primary *driver* of AI development itself).

(37) What does the term "M2M" represent in the context of AI and its related technologies?
a) Machine to Machine communication
b) Man to Machine interface
c) Machine learning to Marketing application
d) Multi-modal to Multi-sensor integration

Answer: a

(38) According to the chapter, which of the following is a primary benefit of using industrial cameras in manufacturing processes?
a) Improving the aesthetic appeal of the factory floor
b) Capturing, storing, and archiving images/videos for analysis by humans or computers.
c) Providing real-time feedback to human workers
d) Reducing the need for human supervision

Answer: b

(39) What is the primary advantage of "knowledge-based systems" over traditional computer programs?
a) They can process larger amounts of data.
b) They can execute complex mathematical calculations.

c) They can store and apply human expertise to solve problems.

d) They can interact directly with physical hardware.

Answer: c

(40) What is a "shopbot," as described in the chapter?

a) A physical robot that assists customers in a store

b) A software agent that automates online shopping tasks

c) A chatbot specifically designed for e-commerce

d) An AI system that predicts customer buying behavior.

Answer: b

(41) Which of the following is NOT a key characteristic of machine learning?

a) Learning from data

b) Adapting to new situations

c) Requiring explicit programming for every scenario

d) Identifying patterns and making connections in data.

Answer: c

(42) The chapter suggests that deep learning excels in which types of applications?

a) Real-time, interactive applications like vision and speech recognition.

b) Batch processing of large static datasets

c) Rule-based expert systems

d) Traditional database management.

Answer: a

(43) What is a key difference between "Augmented Reality" and "Virtual Reality"?

a) AR enhances the real world with digital information, while VR creates entirely immersive digital environments.

b) AR requires specialized hardware, while VR can be accessed on any device.

c) AR is primarily used for entertainment, while VR has more practical applications.

d) AR is a subset of VR technology.

Answer: a

(44) Which of these best describes "knowledge acquisition" in the context of AI?

a) The process of designing algorithms.

b) The way knowledge is stored and organized in a computer system.

c) The process of gathering and structuring knowledge from human experts.

d) The method by which a computer system applies stored knowledge.

Answer: c

(45) What is the primary role of a "knowledge engineer"?

a) To develop AI algorithms.

b) To extract and represent knowledge for expert systems.

c) To design user interfaces for AI applications.

d) To maintain the hardware for AI systems.

Answer: b

(46) According to the chapter, which of the following is an example of AI's use in personalized training?

a) Providing standardized training materials to all employees

b) Using chatbots to answer learners' questions and tailoring online learning experiences.

c) Conducting in-person training sessions led by human instructors.

d) Assessing employee performance through traditional methods.

Answer: b

(47) What is the main goal of using AI to predict employee attrition?

a) To automate the hiring process

b) To identify employees who are likely to leave a company, allowing for proactive retention strategies.

c) To monitor employee performance in real-time.

d) To assess employee satisfaction through surveys.

Answer: b

(48) How does AI help with fraud and data breaches detection, as discussed in the chapter?

a) By encrypting sensitive data.

b) By implementing strong passwords.

c) By using machine learning to identify unusual patterns and anomalies that might indicate fraudulent activity.

d) By educating employees about cybersecurity best practices.

Answer: c

(49) Which AI technology is most relevant to website design in the context of the chapter?

a) Natural Language Processing for content generation.

b) Computer Vision for image optimization

c) Machine Learning for personalized user experiences.

d) All of the above could contribute.

Answer: d (While individual technologies may play specific roles, they can all potentially be involved).

(50) What is a key benefit of AI-driven "predictive customer service options"?

a) Reducing the need for human customer service agents entirely.

b) Anticipating customer needs and providing proactive solutions.

c) Automating responses to frequently asked questions.

d) Collecting customer feedback through surveys.

Answer: b

(51) What is "ad targeting" in the context of AI-driven marketing?

a) Showing generic advertisements to a broad audience.

b) Using AI to personalize ads shown to individual users based on their interests and behavior.

c) Manually selecting which ads to show to different customer segments.

d) Measuring the effectiveness of advertising campaigns.

Answer: b

(52) The chapter's mention of "agility" in the context of AI in manufacturing refers to:

a) The physical dexterity of robots.

b) The ability to quickly adapt to changing market conditions and customer demands.

c) The speed of AI algorithms.

d) The flexibility of manufacturing processes.

Answer: b (Although related to d, the chapter specifically links agility to market responsiveness).

(53) Which of the following is closest to the chapter's definition of AI?

a) The ability of machines to perform any task a human can.

b) The capability of a machine to imitate intelligent human behavior.

c) The creation of sentient machines.
d) The development of algorithms that can surpass human intelligence.

Answer: b

(54) What is the core idea behind "streamlining processes" with AI in operations management?
a) Making processes more complex and sophisticated.
b) Using AI to simplify and optimize workflows, often leading to increased efficiency and reduced costs.
c) Automating every aspect of a business process.
d) Replacing human workers with AI systems.

Answer: b

(55) "Smart outsourcing" enabled by AI could involve:
a) Using AI to select and manage third-party vendors more effectively.
b) Eliminating the need for outsourcing entirely.
c) Transferring entire business functions to AI systems.
d) Reducing the cost of outsourcing by automating communication with vendors.

Answer: a (While other options might have elements of truth, "Smart outsourcing" specifically focuses on AI's role in vendor selection and management)

(56) What does the term "unconscious biases" refer to in the context of recruitment and AI?
a) Explicit discriminatory practices by recruiters.
b) Hidden prejudices that can unintentionally influence human decision-making in hiring.
c) AI algorithms that are programmed to favor certain candidates.
d) The inherent limitations of using data for recruitment.

Answer: b

(57) According to the chapter, what is a potential benefit of using AI for performance assessment?
a) Eliminating the need for human judgment in evaluating employees.
b) Breaking work into smaller components for more granular analysis and comparison to objectives.
c) Providing real-time feedback to employees during their workday.
d) Automating the process of giving promotions and raises.

Answer: b

(58) Which of the following is NOT mentioned as a potential application of AI in marketing, according to the chapter?
a) Content generation
b) Sales forecasting
c) 3D product design
d) Customer segmentation

Answer: c (While AI can be used for design, 3D product design is not explicitly mentioned in the provided text for marketing).

(59) In the "AI Tree" diagram, which disciplines form the foundation of the field of Artificial Intelligence?
a) Computer Science, Mathematics, Engineering
b) Philosophy, Human Behavior, Neurology, Sociology, Psychology, Human Cognition, Linguistics, Biology
c) Robotics, Computer Vision, Natural Language Processing
d) Management Science, Information Systems, Statistics, Fuzzy Logic

Answer: b

(60) The chapter uses the example of DHL's supply chain to illustrate AI's application in:
a) Intelligent factories.
b) Logistics and transportation.
c) Manufacturing process optimization.
d) Customer relationship management.

Answer: b