Emerging Technologies in Computer Science

MCQs and Short Questions

1. Which AI application is related to self-driving cars?
a) Healthcare **b) Transportation**
c) Education d) Gaming

2. AI in finance is mainly used for:
a) Game design b) Disease diagnosis
c) Fraud detection d) Voice recognition

3. AI is widely used in social media mainly for:
a) Content recommendation and targeted advertising b) Weather forecasting
c) Crop irrigation d) Space missions

4. Which application of AI helps in disease and pest detection in crops?
a) Education b) Healthcare
c) Agriculture d) Gaming

5. AI-powered chatbots are commonly used in:
a) Agriculture **b) E-commerce**
c) Space exploration d) Robotics

6. Which domain uses AI for fraud detection and risk assessment?
a) Gaming **b) Finance**
c) Entertainment d) Education

7. Predictive analytics for crop yield is an example of:
a) Healthcare b) Surveillance
c) Agriculture d) Robotics

8. Machine learning is a type of:
a) Computer hardware **b) Artificial Intelligence**
c) Database system d) Networking

9. Deep learning mainly uses:
a) Flowcharts b) Algorithms without data
c) Spreadsheets **d) Neural networks**

10. Which of the following is NOT an application of AI?
a) Robotics b) Social Media
c) Agriculture **d) Manual typing**

11. AI systems that learn from experience belong to:
a) Automation **b) Machine Learning**
c) Networking d) Hardware

12. What does NLP stand for?
a) Natural Logic Processing b) Natural Language Program
c) Natural Language Processing d) Network Language Processing

13. Which AI technology helps computers understand human language?
a) NLP b) Robotics
c) Computer Vision d) Machine Hardware

14. Siri and Alexa are examples of:
a) Robotics b) Computer Vision
c) NLP d) IoT

15. Which field of AI enables computers to understand images and videos?
a) NLP b) Robotics
c) Computer Vision d) Data Science

16. Robotics mainly deals with:
a) Language translation **b) Building and programming robots**
c) Image recognition d) Internet browsing

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MCQs and Short Questions

17. Which of the following is an example of Robotics?
a) Face recognition
b) Auto-complete messages
c) Language translation
d) Robot cleaning the floor

18. AI algorithms are mainly used to:
a) Design hardware
b) Enable machines to think and decide
c) Store data only
d) Connect devices

19. Unexplainable algorithms are also known as:
a) Whitebox algorithms
b) Open algorithms
c) Blackbox algorithms
d) Simple algorithms

20. Why are blackbox algorithms difficult to understand?
a) They use simple rules
b) They involve complex computations
c) They have no output
d) They use no data

21. Which of the following is an example of a blackbox algorithm?
a) Decision Tree
b) Flowchart
c) Neural Network
d) If-else statement

22. A neural network is inspired by the:
a) Computer system
b) Human brain
c) Internet
d) Robot structure

23. Which part of a neural network receives data first?
a) Output layer
b) Hidden layer
c) Input layer
d) Decision layer

24. Hidden layers in a neural network are mainly used for:
a) Displaying output
b) Storing data
c) Processing information
d) Connecting devices

25. Google's AlphaGo is an example of:
a) Computer Vision
b) Robotics
c) Reinforcement Learning
d) Internet of Things

26. What does IoT stand for?
a) Internet of Technology
b) Internet of Things
c) Integration of Things
d) Information of Technology

27. IoT mainly connects:
a) Only computers
b) Only mobile phones
c) People to machines
d) Physical devices to the internet

28. Which of the following is an example of IoT?
a) Word processor
b) Smart home system
c) Spreadsheet
d) Antivirus software

29. Which field is revolutionized by IoT through patient monitoring?
a) Education
b) Agriculture
c) Healthcare
d) Banking

30. Which of the following is an IoT application in healthcare?
a) Online shopping
b) Vital sign monitoring
c) Gaming
d) Emailing

31. IoT devices in healthcare can remind patients to ____.
a) Sleep
b) Exercise
c) Take medication
d) Eat food

32. Which of the following is an example of IoT in transportation?
a) Smart traffic lights
b) Newspapers
c) Landlines
d) Typewriters

MCQs and Short Questions

33. Which one is important for IoT security?
a) Weak passwords b) No updates
c) Strong passwords d) Sharing data publicly

34. Which component of an IoT system collects data from the environment?
a) Actuators b) Networks
c) Sensors d) Devices

35. What is the main function of an actuator in an IoT system?
a) Collect data b) Store data
c) Connect to the internet **d) Convert energy into motion**

36. Smartwatches and smart refrigerators are examples of:
a) Sensors b) Networks
c) Actuators **d) Devices**

37. Which component connects IoT devices to the internet?
a) Sensors **b) Networks**
c) Actuators d) Data analysis

38. Data analysis in IoT is used to:
a) Turn devices on and off b) Measure temperature
c) Process data and make decisions d) Connect devices

39. Who coined the term "Internet of Things"?
a) Bill Gates b) Steve Jobs
c) Kevin Ashton d) Tim Berners-Lee

40. Which of the following is a security measure for IoT devices?
a) Weak passwords b) No updates
c) Strong passwords d) Public access

41. Why are regular updates important for IoT devices?
a) To slow the system **b) To protect against known vulnerabilities**
c) To remove data d) To reduce internet usage

42. What does encryption do in IoT systems?
a) Deletes data b) Copies data
c) Protects data from hackers d) Slows communication

43. How many IoT devices were in use worldwide in 2020 (approximately)?
a) 5 billion b) 10 billion
c) 20 billion d) 50 billion

MCQs and Short Questions

Q1. Define Artificial Intelligence.
AI is a branch of computer science that enables machines to think, learn, and make decisions like humans.

Q2. What are the applications of AI?
AI is used in different fields like healthcare, education, gaming, transportation, automobile, finance, social media, agriculture and e-commerce.

Q3. What is use of AI in healthcare?
AI is used to diagnose diseases and predict patient outcomes.

Q4. Provide two examples of AI applications in healthcare.
1. AI helps doctors detect diseases from medical images.
2. AI-powered robots assist in surgeries.

Q5. How is AI used in education?
AI provides personalized learning and automates administrative tasks.

Q6. Mention one application of AI in gaming.
AI creates realistic characters and improves player experience.

Q7. How does AI help in transportation?
AI is used in self-driving cars and traffic management systems.

Q8. Why is AI important in finance?
AI improves decision-making, detects fraud, and assesses financial risks.

Q9. What role does AI play in social media?
AI provides personalized content recommendations and targeted advertisements.

Q10. How is AI used in agriculture?
AI is used for crop yield prediction, automated irrigation, and disease detection.

Q11. How does AI help in e-commerce?
AI helps by recommending products, providing chatbots for customer support, and detecting fraud.

Q12. Differentiate machine learning and deep learning.

Machine Learning	Deep Learning
Machine learning is a type of AI where computers learn from data and improve without being explicitly programmed	Deep learning is a subset of machine learning that uses neural networks to learn from large amounts of data.

Q13. Explain the role of AI techniques in advancing machine learning models
AI techniques help machines learn from data, recognize patterns, and improve their performance without being explicitly programmed.

Q14. What is Natural Language Processing (NLP) and give example?
NLP is a technology that helps computers understand, read, and communicate in human language. E.g Voice assistants like Siri or word suggestions while typing messages.

Q15. What is Computer Vision and give an example?
Computer Vision is a field of AI that allows computers to see and understand images and videos. e.g Face recognition in mobile phones.

Q16. What is Robotics?
Robotics is the science of building and programming robots to perform tasks.

Q17. What is the use of robot?
Robots are machine use for cleaning floors or assembling cars in factories.

Q18. What are AI algorithms?
AI algorithms are step-by-step methods that help machines learn and make decisions.

Q19. What is a Blackbox (Unexplainable) algorithm?
A blackbox algorithm is an AI algorithm where the decision-making process is difficult to understand.

Q20. Why blackbox algorithms are called unexplainable?
Because they use complex calculations that are not easily interpretable by humans.

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Q21. Define the Internet of Things (IoT) with an example.
IoT(internet of things) is a network of physical devices connected to the internet to collect and share data. e.g smart lights, smart thermostats or smart home system.

Q22. Why is IoT important?
It improves efficiency and enables smart services in areas like healthcare and smart homes.

Q23. Define the Significance of IoT in connecting devices and systems
IoT allows for the seamless integration of the physical devices and digital worlds. These devices are communicated with each other, making systems smarter, faster, and more efficient.

Q24. What are sensors?
Sensors are devices that detect and measure physical properties like temperature, light, and motion.

Q25. What is the role of actuators in IoT?
Actuators convert energy into motion and act on data to produce output.

Q26. What is meant by networks in IoT?
Networks are communication pathways that connect IoT devices to the internet.

Q27. Why is data analysis important in IoT and where it can be done?
Data analysis helps in understanding data and making decisions. It can be done on the device itself, in the cloud, or on a central server.

Q28. What is a smart home?
A smart home uses IoT devices to automatically control lights, heating, and cooling to save energy.

Q29. How does IoT help in healthcare?
IoT helps in healthcare by monitoring patients' vital signs, reminding them to take medicine, and alerting doctors in emergencies.

Q30. How does IoT improve transportation systems?
IoT improves transportation by using smart traffic lights, connected vehicles, and real-time tracking systems.

Q31. Name two IoT applications in transportation.
- Smart buses
- Smart traffic lights

Q32. What are security and privacy concerns in IoT?
Security and privacy concerns refer to the risk of cyber-attacks and misuse of personal data in IoT systems.

Q33. Why are strong passwords important for IoT devices?
Strong passwords help prevent unauthorized access to IoT devices.

Q34. What is the role of regular updates in IoT devices?
Regular updates fix known security weaknesses and protect devices from attacks.

Q35. What is encryption?
Encryption is the process of converting data into a secure form to protect it from hackers.

Q36. Define data privacy in AI and IoT.
Data privacy means protecting personal and sensitive information collected by AI and IoT devices.

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