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Computer Science Grade 12 — Chapter 5

Applications of Computer Science

by Public Library

Independent practice MCQs from the supplied Class 12 Computer Science notes pack. Total: 50 questions.

A. Important / Main Topics

1. IoT is best defined as:

(A) A network of physical devices connected through the Internet
(B) A type of software
(C) A type of database
(D) A programming language

Correct Answer: A

Explanation: IoT is a network of physical devices connected through the Internet for communication with each other.

2. Which of the following is an example of an IoT device?

(A) Desktop computer without internet
(B) Smart watch
(C) Notebook
(D) Pencil

Correct Answer: B

Explanation: A smart watch is an IoT device because it connects to the internet and communicates with other devices.

3. What is the status of IoT in Pakistan?

(A) Fully implemented
(B) Not used at all
(C) Early stage of planning and implementation
(D) Only used in homes

Correct Answer: C

Explanation: In Pakistan, IoT is at an early stage of planning and implementation.

4. Which of the following is a benefit of IoT?

(A) Decreased efficiency
(B) Increased energy consumption
(C) Reduced automation
(D) Improved productivity

Correct Answer: D

Explanation: Improved productivity — this correctly answers the question.

5. Blockchain is best defined as:

(A) A decentralized, distributed ledger of records
(B) A type of cryptocurrency
(C) A traditional database
(D) A programming language

Correct Answer: A

Explanation: Blockchain is a decentralized, distributed ledger of records or transactions shared among many network users.

6. Cloud computing is best defined as:

(A) A type of hardware
(B) The use of hosted services over the Internet
(C) A programming language

(D) A type of network

Correct Answer: B

Explanation: Cloud computing is the use of hosted services such as servers, data storage, databases, networking, and software over the Internet.

7. Which of the following is a benefit of cloud computing?

(A) Increased infrastructure costs
(B) Limited accessibility
(C) Cost savings
(D) Decreased collaboration

Correct Answer: C

Explanation: Cloud computing provides cost savings by eliminating the need for expensive on-premises infrastructure.

8. Neural networks are best defined as:

(A) A type of database
(B) A programming language
(C) A type of network
(D) Simulations of the working of the human brain

Correct Answer: D

Explanation: Neural networks are simulations of the working of the human brain, based on the functioning of neurons.

9. Deep learning is best defined as:

(A) Neural networks with multiple hidden layers
(B) A type of database
(C) A programming language
(D) A type of network

Correct Answer: A

Explanation: Deep learning uses deep neural networks with multiple hidden layers.

10. Data sharing is best defined as:

(A) Deleting data
(B) Making data available to multiple users, applications, and organizations
(C) Encrypting data
(D) Storing data

Correct Answer: B

Explanation: Data sharing means making the same data available to multiple users, applications, and organizations.

11. Data privacy is best defined as:

(A) Making data available to everyone
(B) Deleting data
(C) The ability of a person to control their personal information
(D) Encrypting data

Correct Answer: C

Explanation: Data privacy is the ability of a person to control their personal information and know when, how, and what personal information is shared with others.

12. What does GDPR stand for?

(A) Global Data Privacy Rules
(B) General Data Privacy Regulations
(C) Global Data Protection Rules
(D) General Data Protection Regulations

Correct Answer: D

Explanation: GDPR stands for General Data Protection Regulations.

13. Which of the following is a blockchain application applicable to Pakistan?

(A) All of the above
(B) Voting
(C) Healthcare
(D) Banking

Correct Answer: A

Explanation: Voting, healthcare, and banking are all blockchain applications applicable to Pakistan.

14. Which of the following is a cloud computing application applicable to Pakistan?

(A) Education
(B) All of the above
(C) Healthcare
(D) Government

Correct Answer: B

Explanation: Education, healthcare, and government are all cloud computing applications applicable to Pakistan.

15. Which of the following is a deep learning application?

(A) Natural Language Processing
(B) Healthcare
(C) All of the above
(D) Fraud Detection

Correct Answer: C

Explanation: Natural Language Processing, healthcare, and fraud detection are all applications of deep learning.

16. How does IoT improve productivity and efficiency?

(A) By deleting data
(B) By storing data
(C) By ignoring users
(D) By automating processes and enabling remote control

Correct Answer: D

Explanation: By automating processes and enabling remote control — this correctly answers the question.

17. What role do sensors play in IoT?

(A) They collect data from the environment
(B) They delete data
(C) They store data
(D) They encrypt data

Correct Answer: A

Explanation: Sensors collect data from the environment, enabling automation and control.

18. How does IoT help with energy savings?

(A) By increasing energy consumption
(B) By automating tasks like turning off lights
(C) By reducing automation
(D) By making devices slower

Correct Answer: B

Explanation: IoT helps save energy by automating tasks like turning off lights when no one is in a room.

19. Which of the following is an example of a smart home device?

(A) Traditional notebook
(B) Pencil
(C) Smart TV
(D) Paper

Correct Answer: C

Explanation: A smart TV is an example of a smart home device.

20. Which of the following is a benefit of smart agriculture?

(A) Increased production cost
(B) Reduced productivity
(C) Ignoring weather conditions
(D) Proper knowledge of climate through sensors

Correct Answer: D

Explanation: Smart agriculture uses sensors to observe real-time weather conditions, making farming more controlled, precise, and efficient.

21. What is the purpose of the NDMA mobile app?

(A) To provide early warnings and advisories for disasters
(B) To increase disaster damage
(C) To ignore disasters
(D) To delete disaster data

Correct Answer: A

Explanation: To provide early warnings and advisories for disasters — this correctly answers the question.

22. How does blockchain improve the voting system?

(A) By increasing rigging
(B) By ensuring security and integrity
(C) By making voting slower
(D) By deleting votes

Correct Answer: B

Explanation: Blockchain can transform the voting system by ensuring security and integrity, preventing fraudulent activities.

23. How does blockchain improve healthcare?

(A) By increasing data breaches
(B) By deleting patient data
(C) By providing increased privacy, transparency, and accessibility for patient data
(D) By ignoring patient data

Correct Answer: C

Explanation: Blockchain provides increased privacy, transparency, and accessibility for patient data.

24. How does blockchain improve the banking industry?

(A) By increasing fraud
(B) By deleting transactions
(C) By ignoring security
(D) By making operations more secure, transparent, efficient, and cost-effective

Correct Answer: D

Explanation: By making operations more secure, transparent, efficient, and cost-effective — this correctly answers the question.

25. How does blockchain improve education?

(A) By making record-keeping more efficient, secure, and transparent
(B) By increasing fake credentials
(C) By deleting records
(D) By ignoring verification

Correct Answer: A

Explanation: By making record-keeping more efficient, secure, and transparent — this correctly answers the question.

B. Less Important / Secondary Topics

26. How is cloud computing used in the education sector?

(A) To streamline administrative tasks and enable online learning

(B) To increase administrative tasks
(C) To delete records
(D) To ignore students

Correct Answer: A

Explanation: To streamline administrative tasks and enable online learning — this correctly answers the question.

27. How is cloud computing used in healthcare?

(A) To increase disease
(B) To enable real-time access to medical records and telemedicine
(C) To delete records
(D) To ignore patients

Correct Answer: B

Explanation: To enable real-time access to medical records and telemedicine — this correctly answers the question.

28. What is a neural network?

(A) A type of database
(B) A programming language
(C) A simulation of the human brain
(D) A type of network

Correct Answer: C

Explanation: A neural network is a simulation of the working of the human brain.

29. What are the three layers of a neural network?

(A) Data, Process, Result
(B) Start, Middle, End
(C) Left, Center, Right
(D) Input, Hidden, Output

Correct Answer: D

Explanation: The three layers of a neural network are the input layer, hidden layers, and output layer.

30. What do weights in a neural network represent?

(A) Numerical values associated with connections between neurons
(B) The number of neurons
(C) The type of activation function
(D) The size of the network

Correct Answer: A

Explanation: Weights are numerical values associated with connections between neurons, determining the influence of one neuron's output on another.

31. What is the purpose of biases in a neural network?

(A) To increase the number of layers
(B) To provide adaptability and flexibility
(C) To decrease the number of neurons
(D) To change the activation function

Correct Answer: B

Explanation: To provide adaptability and flexibility — this correctly answers the question.

32. What does an activation function determine?

(A) The number of layers
(B) The number of neurons
(C) Whether a neuron should be activated
(D) The type of data

Correct Answer: C

Explanation: An activation function determines whether a neuron should be activated based on the input.

33. What does a loss function measure?

(A) The number of layers
(B) The number of neurons
(C) The type of data
(D) How well the neural network is performing

Correct Answer: D

Explanation: How well the neural network is performing — this correctly answers the question.

34. What is feedforward propagation?

(A) Information is fed in the forward direction
(B) Information is fed in the backward direction
(C) Information is deleted
(D) Information is ignored

Correct Answer: A

Explanation: Feedforward propagation is the process where information is fed in the forward direction from input to output.

35. What is backpropagation?

(A) Weights are deleted
(B) Weights are modified to minimize the loss
(C) Weights are ignored
(D) Weights are increased randomly

Correct Answer: B

Explanation: Weights are modified to minimize the loss — this correctly answers the question.

36. A city wants to monitor air pollution in real time using IoT sensors. Which combination of technologies would be most effective?

(A) IoT sensors only
(B) Cloud computing only
(C) IoT sensors + cloud computing + blockchain
(D) Blockchain only

Correct Answer: C

Explanation: IoT sensors + cloud computing + blockchain — this correctly answers the question.

37. A hospital wants to securely store patient records using blockchain. Which feature of blockchain ensures that records cannot be altered?

(A) Decentralization
(B) Transparency
(C) Scalability
(D) Immutability

Correct Answer: D

Explanation: Immutability ensures that once data is recorded on the blockchain, it cannot be changed, protecting patient records.

38. A bank wants to prevent financial fraud using blockchain. Which feature of blockchain is most relevant?

(A) Immutability
(B) Scalability
(C) Anonymity
(D) Flexibility

Correct Answer: A

Explanation: Immutability prevents transactions from being altered, eliminating financial fraud.

39. A university wants to eliminate fake degrees using blockchain. Which feature of blockchain is most relevant?

(A) Scalability

(B) Immutability
(C) Anonymity
(D) Flexibility

Correct Answer: B

Explanation: Immutability ensures that degrees and certificates cannot be altered or forged.

40. A government wants to provide online services to citizens using cloud computing. Which benefit is most relevant?

(A) Increased infrastructure costs
(B) Limited accessibility
(C) Improved service delivery
(D) Decreased collaboration

Correct Answer: C

Explanation: Improved service delivery — this correctly answers the question.

41. A company wants to reduce its IT infrastructure costs. Which cloud computing benefit is most relevant?

(A) Increased infrastructure costs
(B) Limited accessibility
(C) Decreased collaboration
(D) Cost savings

Correct Answer: D

Explanation: Cloud computing reduces costs by eliminating the need for expensive on-premises infrastructure.

42. A startup wants to build a model that can recognize images of cats and dogs. Which type of learning is most appropriate?

(A) Supervised learning (classification)
(B) Unsupervised learning
(C) Reinforcement learning
(D) Clustering

Correct Answer: A

Explanation: Image recognition with labeled data (cats and dogs) is a classification problem, a type of supervised learning.

43. A healthcare provider wants to use deep learning to diagnose diseases from medical images. Which application of deep learning is most relevant?

(A) Natural Language Processing
(B) Healthcare
(C) Fraud Detection
(D) Entertainment

Correct Answer: B

Explanation: Deep learning is used for diagnosis of diseases through medical imaging.

44. A company wants to use deep learning to detect suspicious login attempts. Which application of deep learning is most relevant?

(A) Healthcare
(B) Natural Language Processing
(C) Fraud Detection
(D) Entertainment

Correct Answer: C

Explanation: Deep learning is used for fraud detection, such as detecting suspicious login attempts.

45. A media company wants to personalize recommendations for its users. Which application of deep learning is most relevant?

(A) Healthcare

(B) Fraud Detection
(C) Natural Language Processing
(D) Entertainment

Correct Answer: D

Explanation: Deep learning is used in entertainment platforms for content personalization.

46. A student claims that "data sharing and data privacy are always in conflict." Which statement best evaluates this claim?

(A) The claim is partially correct; they often conflict, but can be balanced with proper policies and techniques
(B) The claim is fully correct
(C) The claim is incorrect; they never conflict
(D) The claim is irrelevant to computing

Correct Answer: A

Explanation: Data sharing and privacy often conflict, but they can be balanced with techniques like data minimization and anonymization.

47. A hospital wants to share patient data for research while protecting privacy. Which technique is most appropriate?

(A) Data duplication
(B) Data anonymization
(C) Data deletion
(D) Data encryption only

Correct Answer: B

Explanation: Data anonymization removes personally identifiable information, allowing data to be used for research while protecting privacy.

48. A company wants to ensure that its data collection is limited to what is necessary. Which technique is most appropriate?

(A) Data duplication
(B) Data anonymization
(C) Data minimization
(D) Data encryption only

Correct Answer: C

Explanation: Data minimization limits the collection of personal information to what is necessary to accomplish a specified purpose.

49. Which of the following is a principle of the OECD on data sharing and privacy?

(A) There should be no limits on data collection
(B) Personal data should be inaccurate
(C) Data should be used for any purpose
(D) There should be limits to how much personal data can be collected

Correct Answer: D

Explanation: One of the OECD principles is that there should be limits to how much personal data can be collected.

50. Which combination of technologies is used in the flood management example from the textbook?

(A) IoT, cloud computing, and blockchain
(B) IoT only
(C) Cloud computing only
(D) Blockchain only

Correct Answer: A

Explanation: The flood management example combines IoT sensors, cloud computing for data processing, and blockchain for secure record-keeping.