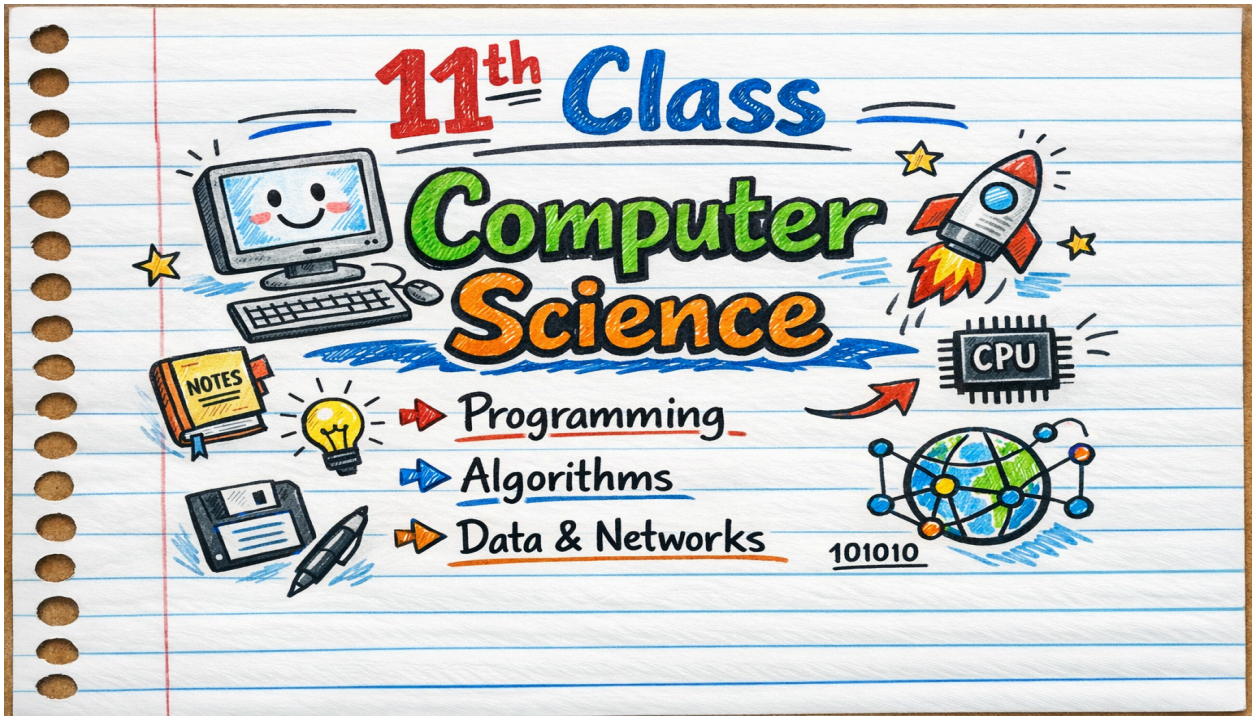

Class: 11th

Subject: Computer Science

Unit 6: Emerging Technologies

❖ Important MCQs:

1. The core concept that allows cloud systems to provide resources over the internet on demand:

(a) Virtualization

(b) On-demand access ✅

(c) Encryption

(d) Compilation

2. The technology that enables multiple operating systems to run on a single physical machine:

(a) Scalability

(b) Virtualization ✅

(c) Blockchain

(d) Edge computing

3. Which cloud service model provides ready-to-use software over the internet?

(a) IaaS

(b) PaaS

(c) SaaS ✅

(d) DaaS

4. The cloud deployment model accessible to the general public over the internet:

(a) Private Cloud

(b) Public Cloud ✅

(c) Hybrid Cloud

(d) Community Cloud

5. The ability of cloud systems to increase or decrease resources as needed is called:

(a) Virtualization

(b) Scalability ✅

(c) Portability

(d) Decentralization

6. In blockchain, the network where nodes interact directly without a central authority is called:

(a) Client-server network

(b) Peer-to-peer network ✅

(c) Centralized network

(d) Private network

7. Blockchain technology is mainly used for:

(a) Central data storage

(b) Distributed and secure record keeping ✅

(c) Graphic designing

(d) Hardware manufacturing

8. A major application of blockchain in real-world industries is:

(a) Word processing

(b) Product tracking ✅

(c) Image editing

(d) Gaming

9. The computing approach that processes data near the source instead of a central cloud is called:

(a) Cloud computing

(b) Edge computing ✅

(c) Grid computing

(d) Parallel computing

10. The next generation of blockchain (Blockchain 2.0) mainly focuses on:

(a) Faster internet speed

(b) Smart contracts and decentralized applications ✅

(c) Hardware development

(d) Data compression

11. Which characteristic best distinguishes emerging technologies from traditional technologies?

(a) Lower cost of implementation

(b) Limited applicability

(c) Potential to significantly transform industries and society ✅

(d) Dependence on manual processes

12. In Artificial Intelligence, the ability of a system to improve performance based on experience is known as:

(a) Compilation

(b) Machine Learning ✅

(c) Virtualization

(d) Encryption

13. Which AI application requires understanding and processing human language?

(a) Computer Vision

(b) Natural Language Processing (NLP) ✅

(c) Robotics

(d) Data Mining

14. What is the key advantage of cloud computing for businesses?

(a) Fixed infrastructure

(b) Scalability and flexibility ✅

(c) Limited access

(d) High maintenance cost

15. Which cloud service model abstracts both hardware and operating system management from the user?

(a) IaaS

(b) PaaS

(c) SaaS ✅

(d) On-premise

16. In blockchain, what ensures that data once recorded cannot be altered easily?

(a) Central authority

(b) Cryptographic hashing and chain linking ✅

(c) Manual verification

(d) Local storage

17. Which feature of blockchain eliminates the need for intermediaries?

(a) Central database

(b) Decentralization ✅

(c) High latency

(d) Limited access

18. In IoT systems, data collected from devices is primarily used for:

(a) Deleting information

(b) Real-time monitoring and automation ✅

(c) Manual processing

(d) Reducing connectivity

19. Which scenario best represents IoT in action?

(a) Editing documents offline

(b) Smart home devices adjusting settings automatically ✅

(c) Printing documents

(d) Using calculators

20. The fundamental difference between AR and VR is that:

(a) AR creates a virtual world only

(b) VR enhances the real world

(c) AR overlays digital content on the real world while VR creates a fully immersive environment ✅

(d) Both are identical technologies

21. The primary impact of 5G technology on emerging technologies is:

(a) Reduced connectivity

(b) Enabling high-speed, low-latency communication for advanced applications ✅

(c) Limiting device usage

(d) Increasing manual operations

22. Which problem type is quantum computing especially suited to solve?

(a) Simple arithmetic calculations

(b) Complex optimization and cryptographic problems ✅

(c) Basic data entry

(d) Word processing

23. The principle that allows qubits to exist in multiple states simultaneously is called:

(a) Entanglement

(b) Superposition ✅

(c) Virtualization

(d) Parallelism

24. In biotechnology, which application demonstrates its real-world impact?

(a) Software debugging

(b) Development of vaccines and improved crops ✅

(c) Network routing

(d) Data compression

25. Which combination of technologies is most likely to drive future smart cities?

(a) Typewriters and printers

(b) IoT, AI, and 5G ✅

(c) Manual systems

(d) Standalone computers

26. The abstraction provided by cloud computing primarily hides:

(a) Internet connectivity

(b) Underlying hardware complexity ✅

(c) User applications

(d) Data formats

27. The “pay-as-you-go” model in cloud computing is most closely related to:

(a) Fixed pricing

(b) Resource optimization and cost efficiency ✅

(c) Hardware ownership

(d) Data redundancy

28. Which scenario best demonstrates efficient resource utilization through virtualization?

(a) Running one OS per machine

(b) Running multiple VMs on a single physical server ✅

(c) Shutting down all systems

(d) Using offline storage

29. Virtualization contributes to cloud computing mainly by:

(a) Increasing hardware dependency

(b) Enabling multi-tenancy and resource sharing ✅

(c) Reducing network access

(d) Eliminating operating systems

30. The key difference between scalability and elasticity is that:

(a) Both are identical concepts

(b) Scalability is manual while elasticity is automatic ✅

(c) Elasticity requires no resources

(d) Scalability reduces performance

31. Which situation best represents scalability but NOT elasticity?

(a) Automatic server adjustment

(b) Manual addition of servers during high traffic ✅

(c) Auto-scaling systems

(d) Real-time monitoring

32. Elasticity in cloud systems is most critical for:

(a) Static workloads

(b) Predictable systems

(c) Dynamic and unpredictable workloads ✅

(d) Offline applications

33. On-demand access in cloud computing primarily improves:

(a) Hardware lifespan

(b) User convenience and response time ✅

(c) Physical security

(d) Manual configuration

34. Which feature of cloud computing reduces deployment delays significantly?

(a) Virtualization

(b) On-demand provisioning ✅

(c) Manual scaling

(d) Local storage

35. The ability to instantly provision storage resources reflects:

(a) Virtualization

(b) On-demand access ✅

(c) Scalability

(d) Centralization

36. In cloud environments, releasing unused resources automatically ensures:

(a) Increased cost

(b) Cost efficiency and optimization ✅

(c) Reduced performance

(d) Data loss

37. Which concept ensures cloud systems can handle seasonal spikes like Eid sales efficiently?

(a) Virtualization

(b) Elasticity ✅

(c) Static allocation

(d) Isolation

38. The independence of virtual machines from each other ensures:

(a) Shared OS control

(b) Fault isolation and flexibility ✅

(c) Reduced scalability

(d) Centralized processing

39. Which cloud feature allows users to avoid long procurement cycles for hardware?

(a) Virtualization

(b) On-demand access ✅

(c) Scalability

(d) Networking

40. The overall goal of cloud computing concepts like virtualization, scalability, and on-demand access is to:

(a) Increase manual effort

(b) Optimize performance, flexibility, and cost efficiency ✅

(c) Eliminate internet usage

(d) Restrict resource access

41. Which cloud service model provides the highest level of infrastructure control to the user?

(a) SaaS

(b) PaaS

(c) IaaS ✅

(d) FaaS

42. In cloud service models, user control is maximum in:

(a) SaaS

(b) PaaS

(c) IaaS ✅

(d) None of these

43. Which layer is NOT managed by users in IaaS?

(a) Operating system

(b) Applications

(c) Physical infrastructure ✅

(d) Storage configuration

44. Which cloud service model eliminates the need for hardware and software management for developers?

(a) IaaS

(b) PaaS ✅

(c) SaaS

(d) On-premise

45. The main purpose of PaaS is to provide:

(a) Raw hardware only

(b) Development and deployment environment ✅

(c) End-user software applications

(d) Network cables

46. Which feature makes PaaS more suitable for software developers?

(a) Full hardware access

(b) Focus on coding without infrastructure management ✅

(c) No internet requirement

(d) Manual server setup

47. SaaS is best described as:

(a) Infrastructure rental service

(b) Development platform service

(c) Ready-to-use software over the internet ✅

(d) Hardware virtualization

48. Which statement best differentiates SaaS from IaaS?

(a) SaaS provides infrastructure

(b) SaaS requires coding

(c) SaaS provides fully managed applications to users ✅

(d) SaaS requires server setup

49. Which of the following is NOT an example of SaaS?

(a) Gmail

(b) Google Docs

(c) AWS EC2 virtual servers ✅

(d) Microsoft Office 365

50. AWS, Azure, and Google Compute Engine are examples of:

(a) SaaS providers

(b) PaaS providers

(c) IaaS providers ✅

(d) Database systems

51. Google App Engine is classified as:

(a) IaaS

(b) PaaS ✅

(c) SaaS

(d) DBaaS

52. Heroku is an example of:

(a) IaaS

(b) PaaS ✅

(c) SaaS

(d) Network service

53. Which service model allows users to focus only on application logic and deployment?

(a) IaaS

(b) PaaS ✅

(c) SaaS

(d) VPN

54. The main advantage of SaaS for end users is:

(a) Hardware customization

(b) No installation or maintenance required ✅

(c) Full server control

(d) Programming flexibility

55. Salesforce is an example of:

(a) IaaS

(b) PaaS

(c) SaaS ✅

(d) Operating system

56. A cloud deployment model where services are shared among multiple organizations is called:

(a) Private Cloud

(b) Hybrid Cloud

(c) Public Cloud ✅

(d) Multi-Cloud

57. Public cloud services are primarily managed by:

(a) End users

(b) Internal IT team

(c) Third-party service providers ✅

(d) Government agencies

58. Which of the following is a key characteristic of a public cloud?

(a) Exclusive access

(b) High cost and high security

(c) Shared resources over the internet ✅

(d) Offline usage

59. A cloud model used exclusively by a single organization is called:

(a) Public Cloud

(b) Private Cloud ✅

(c) Hybrid Cloud

(d) Multi-Cloud

60. Private clouds are mainly chosen for:

(a) Low-cost services

(b) High-security requirements ✅

(c) Public accessibility

(d) Shared usage

61. A major disadvantage of private cloud is:

(a) Low security

(b) High cost of setup and maintenance ✅

(c) Shared access

(d) Lack of control

62. A combination of public and private cloud environments is known as:

(a) Multi-Cloud

(b) Hybrid Cloud ✅

(c) Public Cloud

(d) Distributed Cloud

63. The main advantage of hybrid cloud is:

(a) No flexibility

(b) Balance between security and scalability ✅

(c) Fully public access

(d) No data control

64. In hybrid cloud, sensitive data is usually stored in:

(a) Public cloud

(b) Private cloud ✅

(c) Shared servers

(d) External devices

65. A multi-cloud strategy involves:

(a) One cloud provider only

(b) Multiple cloud providers simultaneously ✅

(c) No cloud usage

(d) Local storage systems

66. Which is an example of a multi-cloud strategy?

(a) Using only AWS

(b) Using AWS, Azure, and Google Cloud together ✅

(c) Using only local servers

(d) Using only SaaS tools

67. The main advantage of multi-cloud is:

(a) Single point of failure

(b) Increased resilience and flexibility ✅

(c) Lower security

(d) Reduced performance

68. Public cloud is generally considered:

(a) Most expensive and most secure

(b) Cost-effective but less secure than private cloud ✅

(c) Fully private and isolated

(d) Offline and local

69. Which deployment model offers the highest level of control and security?

(a) Public Cloud

(b) Hybrid Cloud

(c) Private Cloud ✅

(d) Multi-Cloud

70. The best cloud model for combining flexibility and security is:

(a) Public Cloud

(b) Private Cloud

(c) Hybrid Cloud ✅

(d) Local Cloud

71. Cloud storage primarily replaces traditional storage by using:

(a) Local hard drives

(b) Remote servers accessed via internet ✅

(c) Offline USB devices

(d) Paper-based systems

72. Which feature of cloud storage enables users to access files from anywhere?

(a) Local caching

(b) Internet-based accessibility ✅

(c) Hardware dependency

(d) Manual transfer

73. Google Drive and Dropbox are examples of:

(a) Cloud computing platforms for AI

(b) Cloud storage services ✅

(c) Operating systems

(d) Programming tools

74. The main purpose of cloud-based backup systems is to:

(a) Reduce internet speed

(b) Protect data from local hardware failure ✅

(c) Increase manual work

(d) Delete unused files

75. Web hosting in cloud computing mainly provides:

(a) Local file storage

(b) Infrastructure to run websites online ✅

(c) Offline website access

(d) Hardware manufacturing

76. Content Delivery Networks (CDNs) improve performance by:

(a) Increasing data size

(b) Caching content closer to users ✅

(c) Blocking access

(d) Reducing servers

77. Cloud-based web hosting is beneficial because it offers:

(a) Fixed capacity

(b) Scalability and global reach ✅

(c) No internet requirement

(d) Manual configuration only

78. AWS and Microsoft Azure are commonly used for:

(a) Video editing

(b) Cloud web hosting services ✅

(c) Offline storage

(d) Hardware assembly

79. Cloud-based machine learning platforms help users by:

(a) Increasing hardware cost

(b) Providing powerful computing resources remotely ✅

(c) Eliminating internet usage

(d) Reducing storage capacity

80. AWS SageMaker is mainly used for:

(a) Graphic design

(b) Building and deploying machine learning models ✅

(c) File compression

(d) Email services

81. A major advantage of cloud AI services is:

(a) Requirement of high local computing power

(b) No need for advanced local hardware ✅

(c) Offline processing

(d) Limited functionality

82. The biggest security risk in cloud computing is:

(a) Faster processing

(b) Data breaches and unauthorized access ✅

(c) Improved storage

(d) Better scalability

83. Encryption in cloud computing is used to:

(a) Increase data size

(b) Protect data from unauthorized access ✅

(c) Reduce storage

(d) Slow down systems

84. Strong authentication in cloud systems ensures:

(a) Easy hacking

(b) Only authorized users can access data ✅

(c) Unlimited access

(d) No login required

85. Scalability in cloud computing means:

(a) Fixed resource usage

(b) Adjusting resources based on demand ✅

(c) Offline processing

(d) Manual hardware installation

86. Resource management in cloud computing helps to:

(a) Increase unnecessary costs

(b) Optimize performance and reduce waste ✅

(c) Disable monitoring

(d) Limit accessibility

87. Poor monitoring of cloud resources can lead to:

(a) Cost optimization

(b) Increased unnecessary expenses ✅

(c) Improved efficiency

(d) Better security

88. Cloud computing follows a pricing model based on:

(a) Fixed payment regardless of usage

(b) Pay-as-you-use model ✅

(c) Free unlimited usage

(d) Hardware ownership

89. Compliance in cloud computing ensures:

(a) Data is deleted regularly

(b) Legal and regulatory requirements are followed ✅

(c) No security policies exist

(d) Unlimited access to data

90. Cloud providers help organizations with compliance by:

(a) Ignoring regulations

(b) Offering security and compliance tools ✅

(c) Removing all controls

(d) Limiting cloud usage only

91. Blockchain is best described as a:

(a) Centralized database system

(b) Distributed ledger system shared across multiple nodes ✅

(c) Local storage device

(d) Single-user application

92. The main feature that allows all participants to view blockchain records is:

(a) Immutability

(b) Transparency ✅

(c) Encryption

(d) Virtualization

93. In blockchain, security of data is mainly ensured through:

(a) Manual verification

(b) Cryptography techniques ✅

(c) Paper records

(d) Central authority control

94. Decentralization in blockchain means:

(a) One central server controls all data

(b) Data is controlled by a single organization

(c) No single authority controls the system, all nodes share control ✅

(d) Data is stored offline only

95. A major advantage of decentralization in blockchain is:

(a) Increased single point of failure

(b) Reduced security

(c) Improved trust and reliability ✅

(d) Slower processing only

96. Immutability in blockchain refers to:

(a) Ability to delete records easily

(b) Permanent and unchangeable transaction records ✅

(c) Central data editing

(d) Temporary data storage

97. Once data is added to a blockchain, it:

(a) Can be edited freely

(b) Can be deleted anytime

(c) Cannot be easily altered or removed ✅

(d) Is stored only temporarily

98. A blockchain network achieves agreement among nodes using:

(a) Encryption keys

(b) Consensus mechanisms ✅

(c) Manual approval

(d) Single authority decisions

99. The main purpose of consensus mechanisms is to:

(a) Increase data storage

(b) Ensure agreement on transaction validity among nodes ✅

(c) Remove decentralization

(d) Slow down the system

100. In blockchain, a "node" refers to:

(a) A physical cable

(b) A participating computer in the network ✅

(c) A software bug

(d) A central server only

101. A node in a blockchain network is:

(a) A central server

(b) A computer that participates in the network and maintains a copy of the blockchain ✅

(c) A software error

(d) A database administrator

102. The main function of a node in blockchain is to:

(a) Delete transactions

(b) Validate transactions and maintain ledger copies ✅

(c) Control all users

(d) Encrypt hardware

103. The blockchain ledger refers to:

(a) A single computer file

(b) A shared digital record of all transactions ✅

(c) A private database controlled by one user

(d) A temporary storage system

104. A block in blockchain contains:

(a) Only one transaction

(b) A collection of transactions with metadata like hash and previous block reference ✅

(c) Only user data

(d) Only system logs

105. The unique identifier of a block in blockchain is called:

(a) IP address

(b) Hash ✅

(c) URL

(d) Token ID

106. The reference to the previous block in blockchain is known as:

(a) Child hash

(b) Parent hash ✅

(c) Node link

(d) Data pointer

107. A transaction in blockchain represents:

(a) System update

(b) Transfer of assets or information between participants ✅

(c) Network error

(d) Hardware change

108. The blockchain protocol defines:

(a) Hardware specifications

(b) Rules for validating transactions and adding blocks ✅

(c) Internet speed

(d) User passwords

109. The main purpose of a blockchain protocol is to ensure:

(a) Faster internet

(b) Security and integrity of the network ✅

(c) Data deletion

(d) Central control

110. A peer-to-peer (P2P) network is characterized by:

(a) Central server control

(b) Direct communication between nodes without a central server ✅

(c) Offline data transfer

(d) Single user control

111. In a P2P network, each node acts as:

(a) Only a client

(b) Only a server

(c) Both client and server ✅

(d) A database only

112. A major advantage of P2P networks is:

(a) Centralized control

(b) Increased robustness and decentralization ✅

(c) Single point of failure

(d) Limited scalability

113. Blockchain is used in cryptocurrencies like Bitcoin mainly for:

(a) Image processing

(b) Secure and decentralized transactions without intermediaries ✅

(c) Offline payments

(d) Manual banking

114. In supply chain management, blockchain is used to:

(a) Delete product records

(b) Track and verify goods movement transparently ✅

(c) Slow down logistics

(d) Store offline data only

115. Smart contracts are best described as:

(a) Paper agreements

(b) Self-executing digital agreements based on code conditions ✅

(c) Manual legal documents

(d) Bank-controlled contracts

116. Blockchain is best described as a system that ensures:

(a) Editable data storage

(b) Secure and unchangeable record keeping ✅

(c) Offline file storage

(d) Centralized data control

117. Blockchain helps track products by recording data on:

(a) Local devices

(b) Central server

(c) Decentralized ledger system ✅

(d) Paper registers

118. In supply chain management, blockchain ensures:

(a) Hidden transactions

(b) Transparent and traceable product journey ✅

(c) Faster manual delivery

(d) Data deletion after use

119. Which sequence is correctly represented in a blockchain-based supply chain?

(a) Customer ⟶ Supplier ⟶ Retailer

(b) Supplier ⟶ Manufacturer ⟶ Retailer ⟶ Customer ✅

(c) Retailer ⟶ Customer ⟶ Supplier

(d) Manufacturer ⟶ Customer ⟶ Supplier

120. The main benefit of blockchain in supply chain tracking is:

(a) Reduced transparency

(b) Improved traceability and fraud prevention ✅

(c) Increased manual errors

(d) Centralized control

121. Blockchain data security mainly protects data from:

(a) Faster processing

(b) Unauthorized access and tampering ✅

(c) Increased storage

(d) Internet usage

122. In blockchain security analogy, encryption is compared to:

(a) Signing a document

(b) Sealing a letter in a secure envelope ✅

(c) Mailing multiple copies

(d) Printing data

123. A digital signature in blockchain ensures:

(a) Data deletion

(b) Authenticity and integrity of data source ✅

(c) Faster internet speed

(d) Offline storage

124. In blockchain, a trusted delivery system refers to:

(a) Random data transfer

(b) Secure network that records all transactions ✅

(c) Manual verification only

(d) Local file storage

125. If someone tries to alter blockchain data, the system:

(a) Accepts changes automatically

(b) Detects and rejects the attempt ✅

(c) Deletes all data

(d) Stops the network

126. Decentralization in blockchain security means:

(a) One central authority controls data

(b) Data is stored across multiple nodes ✅

(c) Data is stored offline

(d) Data is deleted frequently

127. Multiple copies of data in blockchain improve:

(a) Risk of data loss

(b) Data safety and reliability ✅

(c) System complexity only

(d) Manual processing

128. Which concept ensures blockchain data cannot be easily lost?

(a) Centralization

(b) Decentralization ✅

(c) Compression

(d) Encryption only

129. Blockchain security is similar to sending multiple copies of a letter because it ensures:

(a) Faster communication

(b) Data redundancy and safety ✅

(c) Reduced security

(d) Centralized delivery

130. The overall purpose of blockchain in real-world applications is to provide:

(a) Editable and private records

(b) Secure, transparent, and tamper-proof data systems ✅

(c) Offline communication systems

(d) Manual transaction tracking

131. The main objective of edge computing is to:

(a) Increase data storage cost

(b) Reduce latency by processing data closer to its source ✅

(c) Centralize all computing tasks

(d) Eliminate internet usage

132. Edge computing processes data at:

(a) Central cloud data centers

(b) The edge of the network near data sources ✅

(c) Offline local systems only

(d) Manual systems

133. The primary benefit of reducing latency in computing systems is:

(a) Slower response time

(b) Faster decision-making and real-time processing ✅

(c) Increased data loss

(d) Higher manual workload

134. Which technology is most suitable for real-time applications like autonomous vehicles?

(a) Cloud storage

(b) Edge computing ✅

(c) Batch processing

(d) Offline computing

135. In autonomous vehicles, edge computing is mainly used for:

(a) Storing files remotely

(b) Processing sensor data locally for instant decisions ✅

(c) Increasing internet traffic

(d) Manual navigation

136. Edge computing is especially important in:

(a) Static data storage systems

(b) Real-time and low-latency applications ✅

(c) Offline document editing

(d) Printing systems

137. A major limitation of traditional cloud computing is:

(a) High speed processing

(b) Network latency due to centralized data centers ✅

(c) No scalability

(d) No storage capacity

138. Serverless architecture allows developers to:

(a) Manage physical servers

(b) Focus only on writing application code without infrastructure management ✅

(c) Build hardware systems

(d) Avoid cloud usage completely

139. In serverless computing, server management is handled by:

(a) End users

(b) Cloud service providers ✅

(c) Local IT staff only

(d) Network routers

140. A key feature of serverless architecture is:

(a) Fixed resource allocation

(b) Automatic scaling of resources based on demand ✅

(c) No internet requirement

(d) Manual server setup

141. AWS Lambda is an example of:

(a) Edge computing tool

(b) Serverless computing service ✅

(c) Blockchain system

(d) Database software

142. In serverless computing, users are billed based on:

(a) Hardware ownership

(b) Actual usage of computing resources ✅

(c) Fixed annual cost

(d) Internet speed

143. Serverless architecture reduces:

(a) Application efficiency

(b) Operational complexity and infrastructure management burden ✅

(c) Cloud scalability

(d) Data storage

144. The main purpose of serverless computing is to improve:

(a) Hardware dependency

(b) Development efficiency and scalability ✅

(c) Manual configuration

(d) Network limitations

145. Edge computing and serverless computing are examples of:

(a) Traditional computing models

(b) Emerging cloud computing innovations ✅

(c) Blockchain protocols

(d) Database systems

146. Edge computing reduces the need for:

(a) Local processing

(b) Centralized data processing centers ✅

(c) Internet connectivity

(d) Software applications

147. Which technology helps reduce network congestion by processing data locally?

(a) Cloud storage

(b) Edge computing ✅

(c) SaaS

(d) Blockchain

148. Serverless computing improves scalability by:

(a) Fixed resource allocation

(b) Automatically adjusting resources based on demand ✅

(c) Disabling cloud usage

(d) Increasing manual control

149. The major advantage of edge computing over cloud computing is:

(a) Higher latency

(b) Faster response time due to local processing ✅

(c) Less security

(d) Centralized control

150. The future direction of cloud computing focuses on:

(a) Manual infrastructure management

(b) Low-latency, automated, and scalable systems like edge and serverless computing ✅

(c) Offline systems

(d) Paper-based systems

❖ Important Short Questions:

1. What is cloud computing?

Answer:

Cloud computing is a technology that provides computing resources like storage, servers, and applications over the internet instead of using local devices.

Example: Google Drive and Dropbox allow users to store and access files online from anywhere.

2. Define virtualization in cloud computing.

Answer:

Virtualization is a technology that allows one physical computer to run multiple virtual machines, each acting like a separate computer.

Example: A single server running multiple virtual servers using VMware or VirtualBox.

3. What is scalability in cloud computing?

Answer:

Scalability is the ability of a system to increase or decrease resources according to demand.

Example: An online shopping website adds more servers during Eid sales due to high traffic.

4. What is elasticity in cloud computing?

Answer:

Elasticity is the automatic adjustment of cloud resources (up or down) based on demand.

Example: Netflix automatically increases server capacity during peak viewing hours.

5. Define on-demand access in cloud computing.

Answer:

On-demand access means users can use computing resources anytime without waiting for setup.

Example: Renting extra cloud storage instantly when your device storage is full.

6. What is Infrastructure as a Service (IaaS)?

Answer:

IaaS provides basic computing infrastructure like servers, storage, and networking on a pay-as-you-go basis.

Example: Amazon Web Services (AWS EC2) provides virtual servers to users.

7. What is Platform as a Service (PaaS)?

Answer:

PaaS provides a complete development environment for building and deploying applications without managing hardware.

Example: Google App Engine allows developers to deploy applications easily.

8. What is Software as a Service (SaaS)?

Answer:

SaaS provides ready-to-use software applications over the internet without installation or maintenance.

Example: Gmail, Google Docs, and Microsoft Office 365.

9. What is a public cloud?

Answer:

A public cloud is a cloud service offered over the internet and shared by multiple users or organizations.

Example: Amazon Web Services (AWS) and Microsoft Azure public services.

10. What is a private cloud?

Answer:

A private cloud is a cloud system used exclusively by one organization for better security and control.

Example: A bank using a private cloud to store sensitive customer data securely.

11. Define hybrid cloud.

Answer:

A hybrid cloud is a combination of public cloud and private cloud that allows data and applications to be shared between them.

Example: A company uses a private cloud for sensitive data and a public cloud for normal applications.

12. What is multi-cloud strategy?

Answer:

Multi-cloud strategy means using services from more than one cloud provider at the same time.

Example: A company uses AWS for hosting, Azure for business apps, and Google Cloud for data analytics.

13. What is blockchain technology?

Answer:

Blockchain is a secure and decentralized digital system that records transactions in a way that cannot be easily changed.

Example: Bitcoin uses blockchain to record transactions securely.

14. Define decentralization in blockchain.

Answer:

Decentralization means no single authority controls the blockchain; instead, all nodes share control.

Example: Bitcoin network where no bank controls transactions.

15. What is immutability in blockchain?

Answer:

Immutability means once data is recorded in blockchain, it cannot be changed or deleted.

Example: A confirmed Bitcoin transaction cannot be reversed or edited.

16. What is a node in blockchain?

Answer:

A node is a computer in a blockchain network that stores and verifies data.

Example: Computers participating in Bitcoin network act as nodes.

17. What is a block in blockchain?

Answer:

A block is a collection of transactions stored together in the blockchain.

Example: A block may contain multiple Bitcoin transactions recorded together.

18. Define transaction in blockchain.

Answer:

A transaction is the transfer of data or assets between users in a blockchain network.

Example: Sending Bitcoin from one wallet to another.

19. What is a blockchain ledger?

Answer:

A blockchain ledger is a digital record of all transactions shared across all nodes.

Example: A distributed record of all Bitcoin transactions worldwide.

20. What is a peer-to-peer (P2P) network?

Answer:

A P2P network is a system where computers connect directly without a central server.

Example: File-sharing networks like BitTorrent.

21. What are smart contracts?

Answer:

Smart contracts are self-executing digital agreements that run automatically when conditions are met.

Example: Ethereum smart contracts automatically release payment after delivery.

22. What are cryptocurrencies?

Answer:

Cryptocurrencies are digital currencies that use blockchain for secure transactions.

Example: Bitcoin and Ethereum.

23. What is edge computing?

Answer:

Edge computing processes data near the source instead of sending it to a central cloud server.

Example: Self-driving cars processing sensor data locally.

24. What is serverless architecture?

Answer:

Serverless architecture allows developers to build applications without managing servers; the cloud provider handles everything.

Example: AWS Lambda runs code without server setup.

25. What are the main applications of cloud computing?

Answer:

Cloud computing is used for data storage, web hosting, AI/ML applications, and software services.

Example: Google Drive (storage), AWS (web hosting), and Google AI tools.

Note:

This chapter is designed to provide a solid foundation of knowledge, with the goal of deepening understanding and encouraging further exploration of the subject. The content has been carefully selected to support effective learning and inspire students to engage with the topic more deeply.

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Purpose: To contribute to education by offering insightful, valuable content that enhances learning and understanding.