JAC Board 12th Computer Science

Most Important Question and Answer 2025

Multiple Choice Questions :-

1. C++ is developed by

(a) Dennis Ritchie

(b) Ken Thompson

(c) Martin Richard

(d) Bjarne Stroustrup

Ans. (d) Bjarne Stroustrup

2. String Terminator character is

(a) '\o'

(b) '\n'

(c) '\b'

(d) None Of These

Ans. (a) '\o'

3. DBMS stands for

(a) Database Management System

(b) Database Manual System

(c) Define Management Solution

(d) None of These

Ans. (a) Database Management System

4. The smallest individual unit in

(a) Semicolon

(b) Data Type

(c) Token

(d) Keyword

Ans. (c) Token

5. The process of finding the location of the particular element in the array is called.

(a) Traversal

(b) Searching

(c) Sorting

(d) None of These

Ans. (b) Searching

6. The Boolean expression A•(B+C)=AB+AC is

(a) Associative law

(b) Commutative law

(c) Absorption law

(d) Distributive law

Ans. (d) Distributive law

7. Destructor name is preceded by

(a) !

(b) $

(c) #

(d) ~

Ans. (d) ~

8. The term 'attribute' refers to a

(a) Table

(b) Row

(c) Column

(d) Relation

Ans. (d) Relation

9. Main is a/an

(a) Object

(b) Function

(c) Literal

(d) None of These

Ans. (b) Function

10. F stream class is used for

(a) Input operation

(b) Output operation

(c) Input/Output operation

(d) None of These

Ans. (c) Input/Output operation

11. A set of logical operators is

(a) + - * / %

(b) ? :

(c) > < >= <=

(d) None of These

Ans. (d) None of These

12. Pointer is a

(a) variable that holds address of other variable

(b) Pointer name is preceded by *

(c) Void pointer is a pointer which can hold the address of any data type

(d) All of these

Ans. (d) All of these

13. STACK follows

(a) GIGO Technique

(b) FIFO Technique

(c) LIFO Technique

(d) None of These

Ans. (c) LIFO Technique

14. When several classes inherit the properties of same common class it is called.

(a) Single inheritance

(b) Multiple inheritance

(c) Hierarchical inheritance

(d) None of These

Ans. (c) Hierarchical inheritance

15. People standing in a line is an example of

(a) STACK

(b) QUEUE

(c) ARRAY

(d) Linked list

Ans. (b) QUEUE

16. _____ is a Browser

(a) C++

(b) Telnet

(c) Firefox

(d) Cookies

Ans. (c) Firefox

17. Main is a/an

(a) Object

(b) Function

(c) Literal

(d) None of These

Ans. (b) Function

18. Destructor has the same name as the constructor and it is preceded by

(a) !

(b) $

(c) #

(d) ~

Ans. (d) ~

19. A set of logical operators is

(a) + - * / %

(b) ? :

(c) > < >= <=

(d) &&, ||, !

Ans. (d) &&, ||, !

20. Which of the following is not a feature of C++?

(a) Operator overloading

(b) Inheritance

(c) Namespace

(d) Reflection

Ans. (d) Reflection

21.Which of the following is not a type of constructor?

(a) Copy constructor

(b) Parameterized constructor

(c) Default constructor

(d) Friend constructor

Ans. (d) Friend constructor

22. Which of the following is not the member of class?

(a) Static function

(b) Friend function

(c) Const function

(d) Virtual function

Ans. (b) Friend function

23. Which of the following concepts provides facility of using object of one class inside 'another class?

(a) Encapsulation

(b) Composition

(c) Abstraction

(d) Inheritance

Ans. (b) Composition

24. which of the following sorting algorithms is of divide- and-conquer type?

(a) Bubble sort

(b) Insertion sort

(c) Quick sort

(d) All of these

Ans. (c) Quick sort

25. The operation of processing each element in the list is known as

(a) Sorting

(b) Merging

(c) Inserting

(d) Traversal

Ans. (d) Traversal

26. Transformation of infix operation (A+B*C-D)/E*F to post-fix is

(a) ABC*+D-EF*/

(b) ABC+*D-EF*/

(c) ABC*+D-EF/*

(d) None of These

Ans. (a) ABC*+D-EF*/

27. The following are components of a database except

(a) user date

(b) metadata

(c) reports

(d) indexes

Ans. (c) reports

28. A row in a relation is called

(a) Data

(b) Tuple

(c) Domain

(d) None of these

Ans. (b) Tuple

29. The Boolean Expression A.(B.C)=(A. B).C is called

(a) Associative Law

(b) Commutative Law

(c) Absorption Law

(d) Distributive Law

Ans. (c) Absorption Law

30. Tautology means a Boolean Expression that always results in

(a) True

(b) False

(c) Both

(d) None of these

Ans. (a) True

31. _____ is a network of networks.

(a) Internet

(b) Intranet

(c) Webpage

(d) Browser

Ans. (a) Internet

32. Which of the following layers is not in OSI model.

(a) Physical layer

(b) Internet layer

(c) Network layer

(d) Transport layer

Ans. (b) Internet layer

33. A set of conditional/ternary operator(s) is/are

(a) +, -, *,/,%

(b) >,<,>=,<=,==,!=

(c) &&, ||, !

(d) ?:

Ans. (d) ?:

34. Which operator has the lowest precedence?

(a) Size of

(b) Unary

(c) Assignment

(d) Comma

Ans. (d) Comma

35. In C++ programming strlen() function is used for

(a) Count length of a string

(b) Copy two strings

(c) Compare two strings

(d) Concatenate two strings

Ans. (a) Count length of a string

36. In C++ programming array index is always starts

(a) 0

(b) 1

(c) 2

(d) 3

Ans. (a) 0

37. While loop checks the condition on

(a) Top

(b) Bottom

(c) Middle

(d) None of these

Ans. (a) Top

38. Which of the following is the symbol for AND operator?

(a) ||

(b) &&

(c) &

(d) None of these

Ans. (b) &&

39. What will be the output of the following condition statement A= 15>=15? 15:16

(a) 16

(b) 15

(c) 31

(d) None of these

Ans. (b) 15

40. If an array is declared as int arr[5] [5], how many elements can it store?

(a) 0

(b) 5

(c) 10

(d) 25

Ans. (d) 25

41. In C++ programming '/' is used for

(a) Form feed

(b) Line brake

(c) Vertical tab

(d) Alarm

Ans. (c) Vertical tab

42. Which of the following data structures is non-linear type?

(a) Strings

(b) Stacks

(c) Lists

(d) None of these

Ans. (d) None of these

43. The operation of processing each element in the list is known as

(a) Sorting

(b) Merging

(c) Inserting

(d) Traversal

Ans. (d) Traversal

44. A Boolean function of n variables has _____ rows of possible input combinations.

(a) n

(b) 2n

(c) 2^n

(d) 2n-1

Ans. (a) n

45. Which of the following is not a type of constructor?

(a) Copy constructor

(b) Parameterised constructor

(c) Default constructor

(d) Friend constructor

Ans. (d) Friend constructor

46. The Boolean expression A.(B+C) = AB + AC is called

(a) Associative Law

(b) Commutative Law

(c) Absorption Law

(d) Distributive Law

Ans. (d) Distributive Law

47. In which topology has every node an equal chance to transmit data?

(a) Ring

(b) Star

(c) Bus

(d) Mesh

Ans. (a) Ring

48. How many layers are there in the TCP/IP model?

(a) 1 layer

(b) 3 layer

(c) 5 layer

(d) 7 layer

Ans. (c) 5 layer

JAC Board 12th Important Subjective Questions :–

Q1. Write a note on Fibre Optics Cable. (2009)

Ans. Fibre optics cable is a high-speed data transmission medium that uses light signals to transfer data. It consists of thin strands of glass or plastic fibers that carry information over long distances with minimal signal loss. Fibre optic cables offer higher bandwidth, faster speed, and better security compared to traditional copper cables. They are widely used in internet communication, telecommunication, and networking.

Q2. What do you understand by Modem? (2009, 2015, 2017)

Ans. Modem (Modulator-Demodulator) is a device that converts digital data from a computer into analog signals for transmission over telephone lines and vice versa. It enables internet connectivity by allowing communication between digital devices and analog communication channels. Modems are essential for data transmission in broadband, DSL, and dial-up connections, facilitating seamless internet access.

Q3. Write the mode of transmission. (2009)

Ans. The **modes of transmission** refer to the way data is transmitted between devices.

There are three main modes:

1. **Simplex Mode** – Data flows in one direction only (e.g., TV broadcast).
2. **Half-Duplex Mode** – Data flows in both directions, but only one direction at a time (e.g., Walkie-Talkies).

3. **Full-Duplex Mode** – Data flows simultaneously in both directions (e.g., Telephone communication).

Q4. Define 'Band'. (2009)

Ans. Band refers to a specific range of frequencies used for transmitting signals in communication systems. It determines the bandwidth, which affects data transmission speed and capacity. Different frequency bands are used for radio, television, mobile networks, and internet communication. For example, FM radio operates in the **88–108 MHz** band, while Wi-Fi uses **2.4 GHz and 5 GHz** bands.

Q5. Write abbreviation of: (2009)

(a) O.S.I.

(b) I.S.O

Ans.

(a) O.S.I. – Open Systems Interconnection

(b) I.S.O. – International Organization for Standardization

Q6. What is the difference between LAN and WAN? (2010, 2012, 2013)

Ans. Difference between LAN and WAN :-

LAN (Local Area Network) is a network that covers a small geographical area like homes, offices, or schools. It offers high-speed data transfer and is privately owned. WAN (Wide Area Network), on the other hand, covers large areas like cities or countries and connects multiple LANs. It has slower speeds, higher costs, and can be publicly or privately owned, like the internet.

Q7. What are the components required for networking? (2010, 2015, 2017)

Ans. The essential components required for networking are:

1. **Computers/Devices** – Nodes like PCs, servers, or mobile devices.
2. **Network Interface Card (NIC)** – Connects devices to a network.
3. **Switch** – Directs data within a network.
4. **Router** – Connects different networks and manages traffic.
5. **Modem** – Converts digital signals for internet access.

6. **Cables/Wireless Media** – Transmits data (Ethernet, fiber optics, Wi-Fi).
7. **Firewall** – Ensures network security.

Q8. Give the full form of the following:

WATS, URL, HTTP & www (2010)

Ans.

WATS – Wide Area Telephone Service

URL – Uniform Resource Locator

HTTP – Hypertext Transfer Protocol

WWW – World Wide Web

Q9. What do you mean by topology? What are the most popular topology? (2010)

Ans. Topology refers to the physical or logical arrangement of devices in a network. It defines how computers and other devices are connected and communicate with each other.

Most Popular Topologies:

1. **Bus Topology** – All devices share a single communication line.
2. **Star Topology** – All devices connect to a central hub or switch.
3. **Ring Topology** – Devices are connected in a circular loop.
4. **Mesh Topology** – Each device connects to multiple other devices for redundancy.
5. **Tree Topology** – A combination of bus and star topologies.

Q10. What are the various physical media used for data transmission in a network system? (2011)

Ans. Various **physical media** used for data transmission in a network system include:

1. **Twisted Pair Cable** – Used in telephone lines and LANs (e.g., Ethernet cables).
2. **Coaxial Cable** – Used in cable TV and early computer networks.

3. **Fiber Optic Cable** – High-speed data transmission using light signals.
4. **Wireless Media** – Includes radio waves, microwaves, and infrared (e.g., Wi-Fi, Bluetooth, satellite communication).

Q11. Write two advantage and disadvantage of star topology. (2011)

Ans.

Advantages of Star Topology:

1. **Easy Troubleshooting** – Faults can be easily detected as each device is connected to a central hub.
2. **Scalability** – New devices can be added without affecting the network.

Disadvantages of Star Topology:

1. **Single Point of Failure** – If the central hub fails, the entire network stops working.
2. **Higher Cost** – Requires more cables and hardware (hub/switch), making it expensive.

Q12. What is a server? What is its role? (2011)

Ans. A **server** is a powerful computer or software that provides services, resources, or data to other computers (clients) in a network.

Role of a Server:

1. **Data Storage & Management** – Stores and manages files, databases, and applications.
2. **Resource Sharing** – Allows multiple users to access shared resources like printers and internet connections.
3. **Security & Authentication** – Manages user access, passwords, and security settings.
4. **Hosting Websites & Applications** – Runs websites, emails, and cloud-based services.

Q13. Define the term Bandwidth. Give unit of Bandwidth. (2011)

Ans. Bandwidth refers to the maximum amount of data that can be transmitted over a network in a given time. It determines the speed and capacity of data transfer.

Unit of Bandwidth: Bandwidth is measured in **bits per second (bps)** and its higher units include:

- **Kbps** (Kilobits per second)
- **Mbps** (Megabits per second)
- **Gbps** (Gigabits per second)
- **Tbps** (Terabits per second)

Q14. What is the purpose of using a MODEM? (2012)

Ans. The **purpose of a MODEM** (Modulator-Demodulator) is to enable communication between digital devices and analog networks, such as telephone lines. It **converts digital signals into analog signals** for transmission and then **converts received analog signals back into digital form** for the computer to process. Modems are essential for **internet access**, allowing data transfer over broadband, DSL, and dial-up connections.

Q15. Give the advantages of email and World Wide Web services provided by INTERNET. (2012)

Ans.

Advantages of Email:

1. **Fast Communication** – Messages are sent instantly across the world.
2. **Cost-Effective** – No postal charges, making it an economical communication method.
3. **File Attachment** – Supports sending documents, images, and videos.
4. **Global Accessibility** – Can be accessed from anywhere with an internet connection.

Advantages of World Wide Web (WWW) Services:

1. **Information Access** – Provides vast amounts of information on any topic.
2. **Online Services** – Enables e-commerce, banking, and cloud computing.
3. **Multimedia Support** – Supports text, images, audio, and video content.
4. **Interconnectivity** – Links multiple web pages for easy navigation.

Q16. Why do we need to network our system? (2012, 2018)

Ans. Need for Networking a System:

1. **Resource Sharing** – Enables sharing of files, printers, and internet connections.
2. **Communication** – Allows email, messaging, and video conferencing between users.
3. **Data Security & Backup** – Centralized storage helps in data protection and recovery.
4. **Cost Efficiency** – Reduces hardware costs by sharing resources.
5. **Remote Access** – Users can access files and applications from different locations.

Q17. Write the two advantages and disadvantages of the following topologies in network. (2012)

(a) BUS **(b) TREE**

Ans.

(a) Bus Topology

Advantages:

1. **Cost-Effective** – Requires less cable, making it inexpensive.
2. **Easy to Expand** – New devices can be added without much effort.

Disadvantages:

1. **Single Point of Failure** – If the main cable fails, the entire network is affected.
2. **Limited Speed & Performance** – Network slows down as more devices are added.

(b) Tree Topology

Advantages:

1. **Scalability** – Easy to expand by adding more nodes.
2. **Hierarchical Structure** – Efficient data management and troubleshooting.

Disadvantages:

1. **High Cost** – Requires more cables and network devices.
2. **Dependency on Root Node** – If the central hub fails, the entire network is affected.

Q18. What is world wide web and what are its advantages? (2012)

Ans. The **World Wide Web (WWW)** is a system of interconnected web pages and resources accessed via the internet. It uses **HTTP (Hypertext Transfer Protocol)** to enable users to browse and retrieve information through web browsers.

Advantages of WWW:

1. **Easy Access to Information** – Provides vast knowledge on any topic.
2. **Global Connectivity** – Connects people worldwide.
3. **Multimedia Support** – Allows text, images, videos, and audio.
4. **E-Commerce & Online Services** – Facilitates shopping, banking, and learning.
5. **Communication** – Enables emails, chats, and video calls.

Q19. What are the facilities provided by this server in a network environment? (2013)

Ans. A server in a network environment provides various facilities to ensure efficient communication, data management, and resource sharing.

Facilities Provided by a Server:

1. **File Storage & Sharing** – Stores and shares files securely.
2. **Data Security & Backup** – Protects data with authentication and regular backups.
3. **Internet & Network Management** – Controls access and monitors usage.
4. **Remote Access** – Allows users to access resources from anywhere.
5. **Email & Communication Services** – Supports emails, messaging, and video conferencing.
6. **Web Hosting** – Hosts websites and online applications.

7. **Database Management** – Manages and processes large amounts of data efficiently.
8. **Peripheral Sharing** – Enables shared use of printers and other devices.

Q20. Explain in brief the networking needs and goals. (2013)

Ans.

Networking Needs:

1. **Resource Sharing** – Enables users to share files, printers, and internet connections.
2. **Communication** – Facilitates emails, video conferencing, and messaging.
3. **Data Security** – Protects sensitive information with authentication and encryption.
4. **Remote Access** – Allows users to access network resources from any location.
5. **Centralized Management** – Helps in monitoring and maintaining network devices.

Networking Goals:

1. **Reliability** – Ensures uninterrupted and error-free data transfer.
2. **Scalability** – Supports future expansion without major changes.
3. **Speed & Performance** – Provides fast data transmission and processing.
4. **Security** – Prevents unauthorized access and cyber threats.
5. **Cost Efficiency** – Reduces operational costs by optimizing resource utilization.

Q21. What are bridge and hub? Explain the advantages of twisted pair cable. (2013)

Ans.

Bridge:

A **bridge** is a networking device that connects two or more network segments and filters traffic based on MAC addresses. It helps reduce network congestion and improves efficiency.

Hub:

A **hub** is a basic networking device that connects multiple computers in a network. It broadcasts data to all connected devices without filtering, making it less efficient than a switch.

Advantages of Twisted Pair Cable:

1. **Cost-Effective** – Affordable compared to other network cables.
2. **Flexibility** – Easy to install and expand.
3. **Reduced Interference** – Twisting reduces electromagnetic interference.
4. **High Data Transmission Speed** – Suitable for LANs with moderate speeds.
5. **Compatibility** – Works with various network devices and protocols.

Q22. Write one advantages and disadvantages of Ring topology? (2014)

Ans.

Advantage: In a Ring topology, data flows in one direction, reducing the chances of data collision and making network performance more efficient.

Disadvantage: If a single node or connection fails, the entire network can be disrupted since each device is connected to exactly two other devices in a circular path.

Q23. Differentiate between HTML and XML. (2014)

Ans. Differentiate between HTML and XML

HTML (HyperText Markup Language) and XML (Extensible Markup Language) are both markup languages, but they serve different purposes:

1. **Purpose**:
    - HTML is used to design web pages and display data with formatting.
    - XML is used to store and transport data in a structured manner.
2. **Structure**:
    - HTML has predefined tags such as <p>, <h1>, and .
    - XML allows users to create custom tags based on their needs.

3. **Flexibility**:
    - HTML is not case-sensitive (e.g., <TITLE> and <title> are the same).
    - XML is case-sensitive (<Title> and <title> are different).
4. **Data Storage**:
    - HTML is mainly for presenting data.
    - XML is used for storing and organizing data without defining its appearance.
5. **Error Handling**:
    - HTML is forgiving of errors and can still be displayed by browsers.
    - XML requires strict syntax rules; errors can prevent processing.

Thus, HTML focuses on how data looks, while XML focuses on how data is structured.

Q24. What is networking? Write the advantages of networking. (2016)

Ans. Networking is the process of connecting two or more computers and devices to share resources, such as files, internet access, and printers. It allows communication between devices using wired (Ethernet) or wireless (Wi-Fi) connections.

Advantages of Networking

1. **Resource Sharing** – Multiple computers can share printers, storage devices, and internet connections, reducing costs.
2. **Data Sharing** – Users can easily share files and information between computers without using external storage devices.
3. **Improved Communication** – Networking enables communication through emails, instant messaging, and video conferencing.
4. **Centralized Data Management** – Important data can be stored in a central location (server), making it easier to manage and back up.
5. **Remote Access** – Users can access their files and resources from anywhere, improving flexibility and productivity.
6. **Cost Efficiency** – Networking reduces hardware costs by allowing resource sharing instead of requiring separate devices for each user.

Thus, networking enhances efficiency, collaboration, and communication in businesses and personal use.

Q25. Write the Short notes on the following: (2016)

(a) E-mail (b) www

Ans.

(a) E-mail (Electronic Mail)

E-mail is a method of exchanging digital messages over the Internet. It allows users to send and receive text, images, and attachments quickly. Each user has a unique e-mail address, and messages are delivered instantly or within a few minutes. Popular e-mail services include Gmail, Yahoo Mail, and Outlook.

(b) WWW (World Wide Web)

The World Wide Web (WWW) is a system of interlinked web pages and multimedia content accessible via the Internet. It is based on technologies such as HTTP (Hypertext Transfer Protocol) and is accessed using web browsers like Google Chrome, Mozilla Firefox, and Microsoft Edge. The WWW allows users to browse websites, search for information, and interact with online services.

Q26. What are repeaters? (2018)

Ans. A **repeater** is a network device used to amplify and extend the signal strength in a communication network. It receives a weak signal, regenerates it, and retransmits it over long distances, preventing data loss and ensuring reliable communication.

Functions of a Repeater:

1. **Extends Network Range** – Boosts signals for long-distance communication.
2. **Minimizes Signal Degradation** – Reduces data loss due to weak signals.
3. **Enhances Network Performance** – Improves data transmission efficiency.

Q27. What is topology? (2019)

Ans. Topology refers to the arrangement or layout of devices and connections in a computer network. It defines how data flows between nodes in a network.

Types of Topology:

1. **Bus Topology** – Single central cable connects all devices.
2. **Star Topology** – All devices connect to a central hub or switch.
3. **Ring Topology** – Devices form a closed loop for data transmission.
4. **Mesh Topology** – Every device connects to multiple other devices.
5. **Tree Topology** – A combination of star and bus topology.

Q28. Define the following terms: (2019)

(a) Node

(b) Network

(c) Client

(d) Server

Ans.

(a) Node: A node is any device connected to a network, such as a computer, printer, router, or server, that can send or receive data.

(b) Network: A network is a system of interconnected devices that communicate and share resources using wired or wireless connections.

(c) Client: A client is a device or software that requests services, such as data or applications, from a server in a network.

(d) Server: A server is a powerful computer or system that provides services, resources, or data to clients in a network.

Q29. Define – (2020)

(a) Hub

(b) Repeaters

Ans.

(a) Hub:

A **hub** is a basic networking device that connects multiple computers in a network. It transmits data to all connected devices without filtering, leading to network congestion. It operates at the **physical layer** of the OSI model.

(b) Repeater:

A **repeater** is a network device that amplifies and retransmits weak signals over long distances. It helps extend network coverage and prevents signal degradation, ensuring reliable communication. It also works at the **physical layer** of the OSI model.