1. 32 bit OS vs 64 bit OS

Feature	32-bit OS	64-bit OS
Memory	Maximum of 4 GB RAM	Maximum of several terabytes of RAM
Processor	Can run on both 32-bit and 64-bit processors	Requires a 64-bit processor
Performance	Limited by the maximum amount of RAM it can access	Can take advantage of more memory, enabling faster performance
Compatibility	Can run 32-bit and 16-bit applications	Can run 32-bit and 64-bit applications
Address Space	Uses 32-bit address space	Uses 64-bit address space
Hardware support	May not support newer hardware	Supports newer hardware with 64-bit drivers

2. Multitask vs Multithread

Multitasking	Multithreading
In multitasking, users are allowed to perform many tasks by CPU.	While in multithreading, many threads are created from a process through which computer power is increased.
Multitasking involves often CPU switching between the tasks.	While in multithreading also, CPU switching is often involved between the threads.
In multitasking, the processes share separate memory.	While in multithreading, processes are allocated the same memory.
The multitasking component involves multiprocessing.	While the multithreading component does not involve multiprocessing.
In multitasking, the CPU is provided in order to execute many tasks at a time.	While in multithreading also, a CPU is provided in order to execute many threads from a process at a time.

3. Explain about Edge Computing

Edge computing refers to the exercise of processing information in the direction of its delivery at the edge of a network, in the region of counting on a centralized cloud or data center. In edge computing, statistics are processed and analysed locally on devices or in nearby servers, lowering latency and permitting quicker reaction times. This technique is especially useful in situations in which actual-time or near-real-time processing is crucial, which include the Internet of Things (IoT), autonomous automobiles, and commercial automation.

Edge computing enhances performance, security, and the capability to manipulate and study information at or close to the beginning, making it a treasured addition to the broader cloud computing atmosphere.

4. Denial of Service (DoS) and Man In The Middle (MITM)

Denial of Service (DoS) is a cyber-attack on an individual Computer or Website with the intent to deny services to intended users. Their purpose is to disrupt an organization's network operations by denying access to its users.

A man-in-the-middle (MitM) attack is a type of cyber attack in which the attacker secretly intercepts and relays messages between two parties who believe they are communicating directly with each other.

5. Explain about Port Number

Port is a logical address of a 16-bit unsigned integer that is allotted to every application on the computer that uses the internet to send or receive data.

Ports are assigned by computer i.e. operating system to different applications. Ports help computer to differentiate between incoming and outgoing traffic. Since the port is a 16-bit unsigned number it ranges from 0 to 65535.

Ports are further divided into three categories:

- Well Known Port
- Registered port
- Dynamic Port

 6.Write down the command to transfer the file via ftp protocol

Ans.

Copying a file from your local machine to a remote system:

scp /path/to/local/file username@remote_host:/path/to/remote/destination/
- **/path/to/local/file:** The path to the file on your local machine.
- **username:** Your username on the remote system.
- **remote_host:** The hostname or IP address of the remote system.

Copying a file from a remote system to your local machine:

scp username@remote_host:/path/to/remote/file/path/to/local/destination/
- **username:** Your username on the remote system.
- **remote_host:** The hostname or IP address of the remote system.
- **/path/to/remote/file:** The path to the file on the remote system.
- **/path/to/local/destination/:** The destination path on your local machine.

7. Explain about CIDR

Ans.

Classless Inter-Domain Routing (CIDR) allows network routers to route data packets to the respective device based on the indicated subnet.

It is an IP address-assigning method that improves the efficiency of an address distribution. It is also known as superneting which replaces the older system based on classes A, B, and C networks. By using a single CIDR IP address many unique IP addresses can be designated.

8. Explain Netmask

A **netmask** is a 32-bit binary mask used to divide an IP address into subnets and specify the network's available hosts.

In a netmask, two of the possible addresses, represented as the final byte, are always pre-assigned and unavailable for custom assignment. For example, in 255.255.225.0, "0" is the assigned network address. In 255.255.255.255, the final "255" is the assigned broadcast address. These two values cannot be used for IP address assignment.

 9. Explain any Use Case Diagram

Ans.

A Use Case Diagram in Unified Modeling Language (UML) is a visual representation that illustrates the interactions between users (actors) and a system. It captures the functional requirements of a system, showing how different users engage with various use cases, or specific functionalities, within the system. Use case diagrams provide a high-level overview of a system's behavior, making them useful for stakeholders, developers, and analysts to understand how a system is intended to operate from the user's perspective, and how different processes relate to one another. They are crucial for defining system scope and requirements.

10. Collect 10 requirement about ecommerce website

Ans.

Here are the **10 essential requirements** for an ecommerce website in short points:

1. **User-Friendly Design**: Easy navigation, responsive layout.

2. **Product Catalog**: Detailed product pages, categories, filters.

3. **Secure Payment Gateway**: SSL encryption, trusted payment processors.

4. **Shopping Cart & Checkout**: Simple, quick process, guest checkout.

5. **Inventory Management**: Real-time stock tracking.

6. **Customer Accounts**: Account creation or guest checkout.

7. **Mobile Optimization**: Fully responsive design for mobile.

8. **Security & Privacy**: SSL, secure transactions, GDPR compliance.

9. **SEO Optimization**: SEO-friendly URL, meta tags, mobile optimization.

10. **Customer Support**: Live chat, contact forms, FAQ section.