Challenging Task

21MEI10015 computer networks

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Ans 1 There are several challenges that can arise when working with internetworking:

Interoperability: Ensuring that different networking devices and technologies can communicate with each other effectively can be a challenge.

Security: network security is a critical concern when it comes to internetworking, as networks are vulnerable to a variety of threats such as malware, hacking, and data breaches.

Scalability: As networks grow and evolve, it can be challenging to ensure that the network is able to handle the increasing volume of traffic and data exchange.

Management: Managing a large and complex network can be a daunting task, and requires the use of specialized tools and processes to ensure that the network is running smoothly and efficiently.

Ans 2 Data is transmitted over a fiber optic cable by using light to carry the information.

The fiber optic cable consists of a core made of glass or plastic, surrounded by a cladding layer and a protective coating. To transmit the data, an LED or laser diode is used to send a beam of light through the fiber optic cable. The light is modulated, or altered, to represent the data being transmitted. The light then travels through the cable, and when it reaches the other end, it is detected by a photodetector, which converts the light back into an electrical signal. The electrical signal is then decoded to retrieve the original data.

Fiber optic cables are very fast and efficient for transmitting data, and they are widely used in a variety of applications, including telecommunications, internet connectivity, and cable TV. They are also used in medical equipment, military communications, and industrial control systems.

Ans 3 networking technologies are changing the home environment in a number of ways.

One of the most significant ways is by making it easier for people to connect to the internet and access a wide range of online resources and services from anywhere in their home.

Wireless networking technologies, such as WiFi, have made it easy to connect devices like laptops, tablets, and smartphones to the internet without the need for physical cables. This has made it possible to use the internet in a variety of locations around the home, such as in the living room, kitchen, or bedroom.

In addition to providing internet access, networking technologies are also being used to connect a wide range of smart home devices. These devices can be

controlled and monitored remotely using a smartphone or tablet, and they can be used to automate many aspects of home life, such as controlling the heating and lighting, or monitoring security.
Overall, networking technologies are making it easier and more convenient for people to connect to the internet and to control and monitor their home environment using a variety of devices.

Ans 4 Automated Teller Machines (ATMs) are devices that allow users to perform variety of banking transactions, such as withdrawing cash, depositing money, and checking account balances. Here is a simplified diagram of how an ATM works:

The user inserts their bank card (debit card, credit card, etc.) into the ATM.
The ATM reads the information on the card and communicates with the user's bank to verify the account.
The user enters their PIN (personal identification number) on the keypad.
The ATM checks the entered PIN against the one stored on file for the user's account. If the PIN is correct, the ATM allows the user to proceed with their transaction.
The user selects the type of transaction they want to perform (e.g., cash withdrawal, balance inquiry) using the buttons on the keypad.
The ATM processes the transaction and dispenses any cash that the user has requested.
The ATM prints a receipt for the user, if requested.
The user takes their cash and receipt (if applicable) and their bank card, and the transaction is complete.