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**Assignment module 3 : Understanding and Maintenance of**

**Section 1: Multiple Choice**

* What is the primary function of a router in a computer network?
  + Assigning IP addresses to devices
  + Providing wireless connectivity to devices
  + Forwarding data packets between networks
  + Managing user authentication and access control
  + **Answer:- c) Forwarding data packets between networks**
* What is the purpose of DNS (Domain Name System) in a computer Network?
  + Encrypting data transmissions for security
  + Assigning IP addresses to devices dynamically
  + Converting domain names to IP addresses
  + Routing data Packets between network segments
* **Answer:- c) Converting domain names to IP addresses**
* What type of network topology uses a centralized hub or switch to Connect all devices?
  + Star
  + Bus
  + Ring
  + Mesh
* **Answer:- a) Star**
* Which network protocol is commonly used for securely accessing and Transferring files over a network?
  + HTTP
  + FTP
  + SMTP
  + POP3
* **Answer:- b) FTP**
* **Section 2: True or False**
* True or False: A firewall is a hardware or software-based security system That monitors and controls incoming and outgoing network traffic based On predetermined security rules.
  + **Answer:- True**
* True or False: DHCP (Dynamic Host Configuration Protocol) assigns Static IP addresses to network devices automatically.
  + **Answer:- False**
* True or False: VLANs (Virtual Local Area Networks) enable network Segmentation by dividing a single physical network into multiple logical Networks.
  + **Answer:- True**
* **Section 3: Short Answer**
* **Explain the difference between a hub and a switch in a computer Network.**
  + **Answer:-**
  + **HUB SWITCH**
  + It is a broadcast device. It is a point to point device
  + It operates at physical layers it operates at datalink layer
  + It cannot be used as a repeater. It can be as a repeater
  + It is not an intelligent device. It is an intelligent device
  + Not very costly. Costly
  + It simply broadcast the incoming it use switching table to find To correct destination
  + Packets

* **Describe the process of troubleshooting network connectivity issues.**
  + **Answer:-** Check for local connectivity issues: The first step in troubleshooting network errors is to check cables, devices, switches, and routers for proper functioning.
  + **Section 4: Practical Application**
* **Demonstrate how to configure a wireless router’s security settings to Enhance network security.**
  + **Answer:-** Here are some ways to configure a wireless router’s security settings to enhance network security:
  + **Update router firmware**
  + Router manufacturers often release firmware updates to fix security vulnerabilities. You can download and install the updated firmware from the provider’s website.
  + **Use WPA3 encryption**
  + WPA3 Personal is the most secure protocol for Wi-Fi devices. If your devices don’t support WPA3, you can use WPA2/WPA3 Transitional, which uses WPA3 Personal for supported devices and WPA2 Personal for older devices.
  + **Change default router login credentials**
  + Most routers come with default usernames and passwords like “admin” and “password”, which are easy for hackers to guess.
  + **Create a guest network**
  + Create a separate network with a different name and password for guests.
  + Disable features that can weaken security
  + Disable Wi-Fi Protected Setup (WPS), Universal Plug and Play (UPnP), and remote management.
  + **Use a strong password**
  + Create a password that’s at least 20 characters long and includes a mix of upper and lower case letters, numbers, and symbols.
  + **Use a virtual private network (VPN)**
  + A VPN encrypts connections between devices, creating online privacy and anonymity.
* **Section 5: Essay**
* **Discuss the importance of network documentation and provide Examples of information that should be documented.**
  + **Answer:-** Network documentation is important because it helps you:
  + **Troubleshoot issues**
  + Well-documented networks are easier to troubleshoot, which can help you resolve problems faster and reduce downtime
  + **Onboard new employees**
  + Documentation can help you quickly onboard new hires and ensure that critical tasks aren’t overlooked
  + **Plan for the future**
  + Documentation can help you plan for future upgrades and expansions by providing information about your existing network infrastructure
  + **Save money**
  + Detailed documentation can help you make the best use of your resources
  + **Some examples of information you should document include:**
  + **Network topology:** The physical or logical map of your network
  + **Cloud architecture diagram:** Visualizes the components within your cloud architecture
  + **Server rack diagram:** Shows the organization of equipment on your server rack
  + **LAN software and hardware:** Document the software and hardware used for your LAN