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327COMPUTERCOMMUNICATIONNETWORKSASSI

GNMENT 01

CIS

DEPARTMENTOFCOMPUTERANDINFORMATIONSYSTEM ENGINEERING

NEDUNIVERSITYOFENGINEERINGANDTECHNOLOGY

BATCH2023 BY

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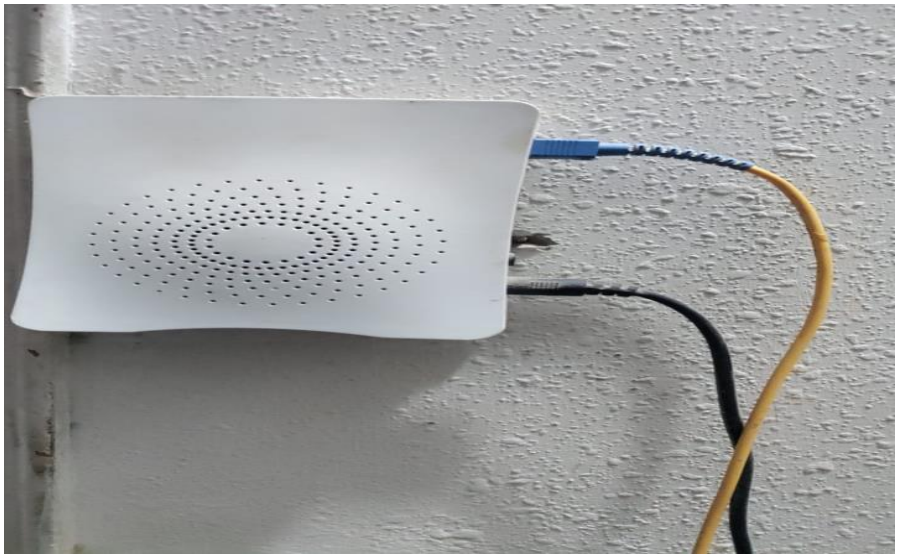
Q.No.01:
Identify and illustrate the type of physical media used for your home internet connection. List all the communication links available within your home network setup.

Physical Media Used:
1. Fiber Optic Cable (FTTH) – Connects ISP to home router.
2. Ethernet Cable (Copper/UTP Cat 5e/6) – Connects router to desktop PCs, laptops, or Smart TVs.
3. Wireless Media (Wi-Fi signal) – Provides internet to mobile devices and IoT devices.

Communication Links in Home Network:
1. Fiber Optic Link (ISP → Router/ONU)
2. Copper/Ethernet Link (Router → PC)
3. Radio/Wi-Fi Link (Router → Mobile phones, Laptops)
4. Satellite/Cellular Link (Mobile Data as backup)

Snapshots of Physical Media and Router:
Below are the actual snapshots of my home internet setup:



Q.No.02:

Explain at least five commonly used network services, describe their purpose, and relate them to appropriate OSI layers.

- **Web Browsing (HTTP/HTTPS)**
    - Purpose: Used to access websites and web applications.
    - Related OSI Layer: **Application Layer (Layer 7)**
- **Email (SMTP, IMAP, POP3)**
    - Purpose: Used for sending and receiving emails.
    - Related OSI Layer: **Application Layer (Layer 7)**
- **File Transfer (FTP, SFTP)**
    - Purpose: Used for sharing and transferring files across networks.
    - Related OSI Layer: **Application Layer (Layer 7)**
- **DNS (Domain Name System)**
    - Purpose: Resolves domain names (e.g., google.com) into IP addresses.
    - Related OSI Layer: **Application Layer (Layer 7)**
- **VoIP (Voice over IP)**
    - Purpose: Used for real-time audio/video communication (e.g., WhatsApp, Skype).
    - Related OSI Layers**: Application Layer (Layer 7), Session Layer (Layer 5), Transport Layer (Layer 4)**

Q.No.03:

Analyze and compare at least three server and three desktop machines from different vendors (Dell, HP, Lenovo). Comparison is based on processor, RAM, storage, networking, pricing, and feature

Servers

Model	Processor	RAM	Storage	Networking	Price (PKR)	Unique Features
DellPowerEdge R740	Intel Xeon Silver/Gold	32GB–1TB	Upto 12TB	DualGigabit LAN	800,000+	Virtualization ready
HP ProLiant DL380Gen10	IntelXeon Gold	64GB+	8TB+ SAS/SSD	10Gb Ethernet	900,000+	Remote management
Lenovo ThinkSystem SR650	IntelXeon Platinum	32–512GB	10TB+	DualLAN	750,000+	Energyefficient

Desktops

Model	Processor	RAM	Storage	Networking	Price (PKR)	Unique Features
DellOptiPlex7090	Inteli5/i710th Gen	8–16GB	1TBSSD	LAN,Wi-Fi	120k–180k	Business reliable
HPEliteDesk800 G6	Intel i5/i7	8–16GB	512GB–1TB SSD	LAN,Wi-Fi	130k–200k	Compact design
Lenovo ThinkCentreM720	Intel i5	8GB	1TBHDD	LAN,Wi-Fi	110k–150k	Durable,eco-friendly

Q.No.04: List down host devices (10) in a typical home network.

Answer:

1. **Smartphones**–Oppo,Vivo,Samsung
2. **Laptops**–HP Pavilion,Lenovo ThinkPad.
3. **Desktops/PCs**–Used in offices, cybercafés.
4. **SmartTVs**–Sony(YouTube/Netflixstreaming).
5. **Routers/Modems**–Jazz4G device.
6. **SmartWatches** –HuaweiWatch.

7. **Printers/Scanners**–HPDeskJet,CanonPixma.
8. **GamingConsoles** –PlayStation, Xbox.
9. **IPCameras(CCTV)**–Hikvision,Dahuacamerasforhomes/offices.
10. **Tablets**–iPad,SamsungGalaxyTab(usedinschools/onlineclasses).