Grade 10 Computer Applications Technology (CAT) Theory Notes

1. Overview and Basic Concepts

1.1 Personal Area Network (PAN) and Home Area Network (HAN)
- PAN: A small network for personal devices (e.g., smartphone, laptop, printer) within a range of a few meters.
- HAN: A network in a home environment, connecting multiple devices (e.g., TVs, PCs, printers, smart devices).

Used For:
- Sharing internet, files, and printers
- Communication between devices

Offers:
- Convenience
- Centralized control of devices
- Cost-effectiveness for home users

Advantages:
- Easy to set up
- Cost-effective
- Enables sharing of internet/printers

Disadvantages:
- Limited range
- Security risks if unsecured

Requirements to Create PAN/HAN:
- Devices (PC, phone, printer, etc.)
- Network hardware (Router, Switch, Modem)
- Communication media (wired/wireless)
- Network software/settings

2. Network Devices and Communication Media

2.1 Network Devices
- Modem: Converts digital signals to analogue for transmission over telephone lines (and vice

versa).
- Router: Directs data between networks, often includes firewall and DHCP services.
- Switch: Connects devices within a LAN; more efficient than a hub by forwarding data to specific devices only.

2.2 Communication Channels/Media
- Wired: Ethernet cables (fast, secure, limited mobility)
- Wireless: Wi-Fi, Bluetooth (more flexible, but can be slower and less secure)

3. Obtaining Internet Access

Hardware Needed:
- Modem or router
- Network card/Wi-Fi adapter
- Cables (if wired)

Software Needed:
- Operating system (with network settings)
- Web browser
- Network drivers

4. The Internet and World Wide Web

4.1 What is the Internet?
- A global network of interconnected computers that communicate using protocols.

4.2 Internet Addresses
- Unique identifiers (IP addresses or domain names) used to locate devices or sites.

4.3 World Wide Web (WWW)
- A service on the Internet that uses web browsers to access documents connected via hyperlinks.

URL (Uniform Resource Locator):
- Example: https://www.google.com
- Shorteners: Tools like Bit.ly create short links for long URLs.

Web Page: A single document on the web.
Web Site: A collection of related web pages.
Hyperlink: Clickable text/image that redirects to another location.

4.4 Types of Web Sites:

- Weblog/Vlog: Blogger, YouTube
- Wiki: Wikipedia
- Social Network: Facebook, Instagram
- Web Applications: Google Docs, Office 365, OneDrive

5. Browsers

What is a Browser?
- A software application to access and view websites (e.g., Chrome, Firefox, Edge).

Basic Browsing:
- Typing URLs
- Using bookmarks
- Navigating via hyperlinks

Tabbed Browsing:
- Allows opening multiple web pages in a single window.

Advantages:
- Easier multitasking
- Better organization

6. Search Engines

What is it?
- Tools to find information on the Internet (e.g., Google, Bing, DuckDuckGo).

Searching Techniques:
- Use keywords: "solar energy benefits"
- Operators: AND, OR, NOT
- Quotation marks: "climate change"
- Minus to exclude: apple -fruit

Downloading and Uploading:
- Downloading: Getting data from the Internet.
- Uploading: Sending data to the Internet.

ISP (Internet Service Provider):
- A company that provides access to the Internet (e.g., Telkom, Vodacom, Afrihost).

7. E-Communication Using Computers

What is E-Communication?
- Use of electronic devices to exchange information.

Communication Devices:
- Smartphones, laptops, webcams, microphones

Applications:
- E-mail: Gmail, Outlook
- Web Browser: Chrome
- Instant Messaging: WhatsApp, Telegram
- Video Messaging: Skype, Zoom
- Online Meeting Platforms: Google Meet, Teams
- Learning Platforms: Google Classroom

8. Email as a Form of E-Communication

8.1 Email Address Format:
- username@domain.extension (e.g., student@school.co.za)

8.2 ISP vs. Web-Based Email:
ISP Email: user@telkomsa.net (access via Outlook)
Web Email: user@gmail.com (access via browser/app)

8.3 Features:
- To, Cc, Bcc
- Attachments, Address Book

8.4 Scan to E-Mail:
- Use a scanner to send scanned documents via email.

8.5 Netiquette:
- Be respectful and concise
- Avoid all caps
- Use clear subject lines
- Proofread before sending

8.6 General Netiquette Rules:
- Don’t share private info
- Think before posting
- Respect copyrights