

## **CHAPTER : INTERNET AND ITS SERVICES + INTERNET SECURITY**

### **1. INTRODUCTION TO INTERNET**

Internet stands for Interconnected Network. It is a network of networks that connects billions of computers across the world with each other. It allows computers to communicate and share data using standardised communication protocols. The Internet enables various services such as the WWW, email, file sharing and social media. This era is called the era of communication revolution due to the utility of Internet.

### **2. HISTORY OF INTERNET**

1969 — ARPANET was created by the U.S. Department of Defense's ARPA (Advanced Research Project Agency). It was the world's first computer network and the precursor to the Internet.

1970s — TCP/IP (Transmission Control Protocol/Internet Protocol) was developed by Vint Cerf and Bob Kahn, forming the standard for data transmission on the Internet.

1983 — ARPANET adopted TCP/IP and the Internet was officially born.

1989 — Tim Berners-Lee developed the World Wide Web (WWW), a system of hyperlinked documents that could be accessed through Internet. It was developed at Physics Research Lab (CERN) in Geneva.

Internet in India — The first public Internet service in India was introduced by VSNL in 1995. National Information Center, New Delhi was one of the first agencies to connect to the Internet. India's first Internet cafe was opened in Mumbai in 1996. The first website domain registered in India was Rediff.com. Sabeer Bhatia is considered as the father of Hotmail, the first free e-mail service in India.

Additional Key Facts:

- Vint Cerf is known as the Father of the Internet.
- The first domain name was symbolics.com registered on March 15, 1985 by Symbolics.
- Ray Tomlinson is credited with sending the first email between two computers connected on the ARPANET network.
- The term "social network" was first coined by J.A. Barnes in 1950s.
- Facebook is the world's largest social networking site with over 2.9 billion active users as of 2024.
- Twitter is the most popular platform for microblogging.
- The first video ever uploaded on YouTube was titled "Me at the zoo", uploaded by Jawed Karim on April 23, 2005.
- The first IoT device was a Coca-Cola vending machine at Carnegie Mellon University in 1982.
- The first domain name was symbolics.com registered on March 15, 1985.

### **3. INTERNET CONNECTIONS**

Internet connections refer to the methods or technologies that allow a device to access the Internet. These connections are provided by ISP (Internet Service Provider) companies.

**1. Dial Up Connection** It is an older method of accessing the Internet using a telephone line. It uses a modem to convert digital data into an analog signal that can travel over the phone line. Dial Up connections are very slow, with speeds typically up to 56 kbps. It is also called the analog connection or switch line connection.

**2. Leased Line Connection** It is a dedicated, private connection between customer and service provider. It is used by businesses for reliable and high-speed Internet access. Leased lines offer high-speed transmission, with speeds ranging from 1 Mbps to several Gbps.

**3. Broadband Connection** It is widely used for both home and business purposes due to its reliability and speed. Broadband offers much faster speeds compared to dial-up, typically ranging from 1 Mbps to 1 Gbps or more.

Types of Broadband Connections:

(i) **DSL (Digital Subscriber Line)** — Uses existing telephone lines to deliver high-speed Internet access. It separates voice and data signals, which allows simultaneous use of the phone line for voice calls and Internet access. DSL speeds range from 256 Kbps to 100 Mbps.

(ii) **Cable Broadband** — Uses coaxial cables to deliver high speed Internet access, typically ranging from 10 Mbps to 1 Gbps.

(iii) BPL (Broadband over Power Line) — It is a wired broadband connection that uses the existing electrical power lines to deliver high-speed Internet access. BPL is good for areas where there are no other broadband connections but power infrastructure exists.

(iv) ADSL (Asymmetric Digital Subscriber Line) — It is a type of broadband over telephone lines that provides faster download speeds than upload speeds.

**4. ISDN (Integrated Services Digital Network)** ISDN is a digital communication technology that allows the transmission of voice, data and video over traditional telephone lines. It provides a faster and more reliable Internet connection compared to traditional dial-up.

**5. Satellite Connection** It is a wireless communication technology that provides Internet access via satellites orbiting the Earth. It is particularly useful in remote or rural areas, where traditional wired connections like DSL are unavailable.

- The process of transmitting data or signals from a ground station to a satellite in space is called uplink.
- The process of transmitting data or signals from a satellite to ground station is called downlink.

**6. Wi-Fi** Wi-Fi networks can be used for public Internet access at hotspots such as restaurants and coffee shops. It uses radio signals to provide broadband internet.

**7. Fiber Optic** Fastest media of data transfer. Uses light waves. Works on the principle of total internal reflection.

**8. Tethering** Using a smartphone's data connection to provide internet access to other devices such as laptops or tablets.

Internet Connection Speed Comparison (Slowest to Fastest): Dial-up (up to 56 kbps) → ISDN → DSL (256 Kbps to 100 Mbps) → Cable (10 Mbps to 1 Gbps) → Broadband (1 Mbps to 1 Gbps) → Fiber Optic (fastest)

## 4. INTERNET TERMS AND DEFINITIONS

**1. IP Address (Internet Protocol Address)** Every computer connected to the Internet has a special numerical address for its unique identification, which is called IP Address. IP address is given by ISP (Internet Service Provider).

- Dynamic IP Address — If a computer is given a new IP Address every time (assigned by DHCP server).
- Static IP Address — If a computer is given a permanent IP Address that does not change automatically.

IP address comes in two versions:

- IPV4 — Uses a 32-bit address format (4 bytes), represented as four decimal numbers from 0 to 255 separated by dots. Example: 192.168.0.1. Each part is a number between 0 and 255.
- IPV6 — Uses a 128-bit address format, represented as eight groups of hexadecimal numbers separated by colons. Example: 2001:0db8:85a3:0000:0000:8a2e:0370:7334.

**2. World Wide Web (WWW)** WWW is also known as The Web, Information Superhighway or W3. Millions of web pages are available on it in the form of documents connected to each other through hyperlinks. It was developed by Tim Berners-Lee in 1989 at Physics Research Lab (CERN) in Geneva. It provides the facility to view all the information posted on the Internet. Major parts of the World Wide Web are Website, Web Page, Browser, Search Engine, URL, etc.

**3. URL (Uniform Resource Locator)** A URL is a unique address used to locate and access specific resources on the Internet. It is also known as the web address. Example: <http://www.mypage.com/index.html>

Parts of URL:

- HTTP — This is a transfer protocol from where URL starts.
- Domain Name — The domain name represents the name of the organisation or entity.
- Absolute Path — Specifies the exact location or page on the server.

The correct structure of a URL is: Hostname, server type, folder name and file name. A URL must contain a protocol identifier, WWW and the unique registered domain name.

**4. Web Page** A web page is what you see in a web browser when you are on the Internet. It is often written using HTML (Hypertext Markup Language). It is of two types:

- Static web page — Has fixed content that does not frequently change.
- Dynamic web page — Updates based on user interaction or real-time data.

**5. Web Server** Web Server is a computer or program that hosts and serves webpages to users' browsers. It processes requests for webpages and sends the appropriate files back to the user. It uses HTTP or HTTPS protocols to transfer data. It can host multiple websites and handle multiple requests simultaneously. A web server on the Internet is also known as host.

**6. Website** A collection of related webpages is called a website. All websites are available on the web server. The first page of every website is called the home page.

**7. MAC (Media Access Control) Address** A MAC address is a unique identifier assigned to a Network Interface Card (NIC) for communication on a physical network. It is unique and different for every system. It is usually of 48 bits. It is also called physical address and hardware address. The device is identified in the network on the basis of MAC Address. MAC address is permanent whereas IP address may vary for a network device each time it is connected to the internet.

**8. Cloud Computing** Connecting to the Internet and using the facilities available on the Internet is called cloud computing. It is also called cloud storage. In this, various types of services are provided in the form of software through the Internet. Examples: Google Drive, Google Photos.

Advantages of Cloud Computing:

- Cost Efficiency — No need for expensive hardware.
- Scalability — Easily adjusts to demand.
- Accessibility — Access from anywhere with Internet.
- Data Backup — Easy data storage and recovery.

Types of Cloud: Public Cloud, Private Cloud, Hybrid Cloud.

**9. Cookies** Cookies are small pieces of data stored on a user's device by a web browser. They are used by websites to remember information about the user, such as login details, preferences and browsing history. It enhances user experience by personalising content, keeping users logged in and tracking website activity. Cookies are most commonly used to identify return visitors to a website. Main purpose of cookies is to store user preferences.

**10. Internet of Things (IoT)** It is also called IoT. It connects everyday objects to the Internet and allows them to send and receive data. IoT enables automation and efficiency by letting devices communicate and perform tasks without human input. Devices like smart thermostats, lights and fitness trackers are examples of IoT products. The first IoT device was a Coca-Cola vending machine at Carnegie Mellon University in 1982.

**11. Domain Name** A domain name is the address you type in the web browser to visit a website. It is a human-friendly name that represents an IP address. DNS (Domain Name System) is a protocol used to translate domain name into IP address and vice versa.

Types of Domain Name: (i) Geographical Domain — Based on a specific geographic location or country. Examples: ccTLDs like .uk (United Kingdom), .in (India), .ca (Canada). (ii) Organisational Domain — Linked to a specific organisation, business or entity. Examples: gTLDs like .com (Commercial Groups), .gov (Government Organisation), .edu (Educational Institutes), .mil (Military Organisations), .org (Non-profit organisations), .net (Network sites).

The maximum character length for a domain name is 253 characters.

**12. Web Browser** A web browser is a software program that helps in connecting a computer to the Internet. Through this, the World Wide Web can be accessed. It is connected to the web server through a set of communication rules known as HTTP.

Features of a web browser: Has a HOME page, stores user's favourite websites, keeps history of websites visited, allows going backward and forward, provides access to internet, provides bookmarks bar for frequently visited websites.

Incognito mode (also known as private browsing) is a feature in web browsers that allows users to browse the Internet without saving history.

Popular Web Browsers:

- Mosaic (1993) — Marc Andreessen — First graphical web browser
- Netscape Navigator (1994) — Netscape Communications — Early leader in browser market
- Internet Explorer (1995) — Microsoft — Default browser on Windows; discontinued on 15 June 2022
- Opera (1995) — Opera Software — Known for built-in VPN and blocker features
- Mozilla Firefox (2002) — Mozilla Foundation — Privacy-focused and customisable browser
- Safari (2003) — Apple — Optimised for Apple devices
- UC Browser (2004) — UCWeb — Popular browser for mobile browsing, data compression
- Google Chrome (2008) — Google — One of the most widely used web browsers globally
- Epic Browser (2010) — Hidden Reflex — India's first web browser
- Microsoft Edge (2015) — Microsoft — Successor to Internet Explorer

Note: Chrome, Safari, Firefox are browsers — NOT search engines.

**13. Search Engine** A search engine is a software system that allows users to search for information on the Internet. It indexes billions of web pages and retrieves relevant results based on user queries. A web crawler (also called web spider) is a program that visits websites and reads their pages to create entries for a search engine index.

Types of Search Engines:

1. **Crawler Based Search Engine** — Works like a robot that explores the Internet. Also called web spider. Example: Google, Bing.
2. **Human Powered Directories** — Relies on people to manually submit and categorize websites. Example: DMOZ, Yahoo Directory.
3. **Meta Search Engines** — Sends search query to multiple other search engines and combines results. Example: DuckDuckGo, Dogpile.
4. **Hybrid Search Engines** — Combines features of both crawler-based and human-powered. Example: Yahoo.

Popular Search Engines:

- Archie (1990, Canada) — World's first search engine — Alan E. Reiter
- Aol.com (1983, USA) — AOL
- Google (1998, USA) — Google
- Bing (2009, USA) — Microsoft
- Yahoo (1994, USA) — Yahoo
- DuckDuckGo (2008, USA) — DuckDuckGo Inc.
- Baidu (2000, China) — Baidu Inc.
- Yandex (1997, Russia) — Yandex N.V.
- Ask.com (1996, USA) — Ask Media Group
- Guruji (2006, India) — Guruji.com — India's first search engine

**14. Bookmark** A bookmark is a saved shortcut in a web browser that lets you quickly access your favourite websites. Instead of typing the website's address every time, you can just click on the bookmark to visit the site instantly. Shortcut to bookmark a website: Press Ctrl+D or click the star icon in the browser's address bar.

**15. Hyperlink** A hyperlink is a link in a web page that, when clicked, opens another document or webpage. It helps in connecting to other documents on the internet. Hyperlinks can be: Text, Drawing objects, Pictures, a group of cells.

**16. MODEM (Modulator-Demodulator)** MODEM stands for Modulator-Demodulator. It is an electronic device that converts a computer's digital signals into analog format for transmission over a phone line, and vice versa. It connects a computer to the internet through a telephone line. To connect a computer to an ISP, it must be connected with a modem. The connector used for telephone/modem interface is RJ-11.

**17. VoIP (Voice Over Internet Protocol)** VoIP stands for Voice Over Internet Protocol. It is a technology that permits two or more people in different locations to interact via mutual video or audio transmission simultaneously. It allows real-time communication over the internet such as voice and video calls without requiring additional software or hardware beyond a web browser.

## 5. PROTOCOLS — COMPLETE TABLE

A protocol is a set of rules that governs communication between computers on a network.

Protocol	Full Form	Purpose
HTTP	Hyper Text Transfer Protocol	Transfer web pages between browser and server
FTP	File Transfer Protocol	Transfer files from one computer to another over the internet
SMTP	Simple Mail Transfer Protocol	Send/push email messages to the server
POP3	Post Office Protocol version 3	Retrieve email from server to computer
IMAP	Internet Message Access Protocol	Access email on server without downloading
TCP/IP	Transmission Control Protocol/Internet Protocol	Standard communication protocol of internet
DHCP	Dynamic Host Configuration Protocol	Dynamically allocate IP addresses to hosts

Protocol	Full Form	Purpose
DNS	Domain Name System	Convert domain names to IP addresses
Telnet	—	Remote login to another computer over internet
VoIP	Voice Over Internet Protocol	Make voice calls over internet
MIME	Multipurpose Internet Mail Extensions	Allow emails to carry non-ASCII data like audio, video, images
SIP	Session Initiation Protocol	Used in VoIP for signalling

## 6. E-MAIL (ELECTRONIC MAIL)

E-mail stands for Electronic Mail. Email is a method of sending digital messages over the Internet. Email was developed by Ray Tomlinson in 1971. Some popular free email services are Gmail, Yahoo mail, Rediff mail, Outlook.com, AOL mail, Zoho mail, Hotmail, Proton mail, iCloud mail.

An email address has 2 main parts:

- Local Part — Before the "@" symbol. It represents the username. Example: In john@example.com, "john" is the local part. Maximum 64 characters long.
- Domain Part — After the "@" symbol. It identifies the mail server responsible for receiving the email. Example: In john@example.com, "example.com" is the domain part.

The mandatory symbol in an email address is @ (at the rate). Symbols NOT permitted in email addresses: blank space, at sign (@) used more than once.

A maximum of 25 MB file can be sent in email. Text, photo, audio, video files can be sent along with the email message, which is called attachment. The paper clip icon is used to add an attachment to an email.

Parts of an email Message:

- Subject — A brief summary of the email's content.
- From — The email address of the person sending the mail.
- To — The email address of the person receiving the mail.
- CC (Carbon Copy) — Used to send the email to additional recipients. Everyone in the "To" and "CC" fields can see each other's email addresses.
- BCC (Blind Carbon Copy) — Used to send the email to additional recipients while keeping their email addresses hidden from others. Only the sender sees the BCC recipients.

An email signature is typically placed at the end of an email.

Protocols used for email: SMTP (sending), POP3 / IMAP (receiving).

Mail Box and Its Parts:

- Inbox — The folder where you receive incoming emails.
- Sent — Stores copies of all the emails you have sent.
- Drafts — Holds emails that you have started but have not finished or sent yet.
- Trash/Junk — Stores deleted emails temporarily, which can be recovered before they are permanently deleted.
- Outbox — Stores failed or unsent emails.
- Spam — Holds emails identified as unwanted or suspicious.

## 7. APPLICATIONS/SERVICES OF INTERNET

**1. E-Mail** — Already covered above.

**2. Social Networking** Social networking services are online platforms that allow users to create profiles, interact with other users, share content and communicate in real-time.

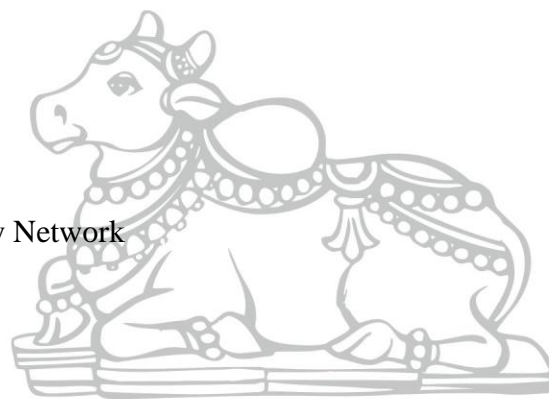
Popular Social Networking Sites:

- LinkedIn — Reid Hoffman — 2003 — USA
- Facebook — Mark Zuckerberg — 2004 — USA
- Orkut — Orkut Buyukkokten — 2004 — Brazil
- YouTube — Steve Chen, Chad Hurley, Jawed Karim — 2005 — USA
- Reddit — Steve Huffman — 2005 — USA
- Twitter — Jack Dorsey — 2006 — USA
- WhatsApp — Jan Koum, Brian Acton — 2009 — USA

- Pinterest — Ben Silbermann, Paul Sciarra — 2010 — USA
  - Instagram — Kevin Systrom, Mike Krieger — 2010 — USA
  - Snapchat — Evan Spiegel, Bobby Murphy — 2011 — USA
- 3. E-commerce (Electronic Commerce)** Refers to the buying and selling of goods and services over the Internet. Examples: Amazon, Flipkart, eBay.
- 4. E-banking (Electronic Banking)** A service that allows customers to perform financial transactions via the Internet. Examples: PhonePay, Google Pay.
- 5. Video Conferencing** Allows people to communicate in real-time through both audio and video over the Internet. Examples: Zoom, Skype, Google Meet, Microsoft Teams.
- 6. E-news** Delivery of news and updates through digital platforms. Examples: BBC News, The New York Times, The Times of India.
- 7. E-books (Electronic Books)** Digital versions of printed books that can be read on electronic devices like e-readers, tablets or smartphones.
- 8. E-reservation** Booking services like travel, accommodation and tickets online. Examples: MakeMyTrip, Booking.com, IRCTC.
- 9. Blogging** A type of Internet service that allows individuals or organisations to create and publish content (called blog posts) on the Internet. Examples: Tumblr, WordPress, Medium.
- 10. Usenet** An early online discussion system, created in 1980, where users post messages and share files in newsgroups.

## 8. IMPORTANT ABBREVIATIONS

- ISP — Internet Service Provider
- WWW — World Wide Web
- URL — Uniform Resource Locator
- IP — Internet Protocol
- MAC — Media Access Control
- DNS — Domain Name System
- IoT — Internet of Things
- SEO — Search Engine Optimisation
- TLD — Top Level Domain
- HTML — Hypertext Markup Language
- HTTP — Hyper Text Transfer Protocol
- FTP — File Transfer Protocol
- SMTP — Simple Mail Transfer Protocol
- POP3 — Post Office Protocol version 3
- IMAP — Internet Message Access Protocol
- ARPANET — Advanced Research Project Agency Network
- ISDN — Integrated Services Digital Network
- DSL — Digital Subscriber Line
- ADSL — Asymmetric Digital Subscriber Line
- BPL — Broadband over Power Line
- TCP/IP — Transmission Control Protocol/Internet Protocol
- DHCP — Dynamic Host Configuration Protocol
- VoIP — Voice Over Internet Protocol
- MIME — Multipurpose Internet Mail Extensions
- MODEM — Modulator-Demodulator
- CC — Carbon Copy
- BCC — Blind Carbon Copy
- SIP — Session Initiation Protocol
- CERT-In — Indian Computer Emergency Response Team



NBCC

## 9. KEY EXAM FACTS (PYQs ONELINER)

- Internet stands for Interconnected Network.
- Vint Cerf is the Father of the Internet.

- TCP/IP was developed by Vint Cerf and Bob Kahn.
- WWW was developed by Tim Berners-Lee in 1989 at CERN, Geneva.
- First public Internet service in India was by VSNL in 1995.
- India's first Internet cafe was opened in Mumbai in 1996.
- First website domain in India was Rediff.com.
- Sabeer Bhatia is the father of Hotmail.
- Email was invented by Ray Tomlinson in 1971.
- Hotmail is considered the first email service.
- Mosaic was the first graphical web browser (1993).
- Archie was the world's first search engine (1990).
- Guruji.com is India's first search engine.
- Epic Browser is India's first web browser.
- Facebook was founded by Mark Zuckerberg in 2004.
- Twitter was founded by Jack Dorsey in 2006.
- LinkedIn was founded by Reid Hoffman in 2003.
- WhatsApp was founded by Jan Koum and Brian Acton in 2009.
- YouTube was founded by Steve Chen, Chad Hurley and Jawed Karim in 2005.
- A global network of interconnected computers and devices is called Internet.
- Outlook is an example of an email client.
- Google Meet, Zoom, Skype are commonly used for video conferencing.
- Private browsing without saving history is the main feature of Incognito Mode.
- Lynx is a text-based web browser.
- URL stands for Uniform Resource Locator.
- Yahoo is an example of a search engine.
- Downloading refers to transferring data from the Internet to your device.
- Uploading refers to sending data from your device to the Internet.
- TCP is a connection-oriented protocol; UDP is a connection-less protocol.
- MAC address is permanent; IP address may vary each time a device connects to the internet.
- The size of a MAC address is 48 bits.
- IPv4 is 32 bits; IPv6 is 128 bits.
- CERT-In is the Indian Computer Emergency Response Team.
- A Podcast is a series of audio files available in digital format for downloading or listening over the internet.
- Steganography is an art of hiding the existence of a message.
- Tethering involves using a smartphone's data connection to provide internet access to other devices.

**Q1.** Internet stands for:

(a) Integrated Network (b) Interconnected Network (c) Internal Network (d) International Network

**Q2.** Who is known as the Father of the Internet?

(a) Tim Berners-Lee (b) Bob Kahn (c) Vint Cerf (d) Bill Gates

**Q3.** ARPANET was created in:

(a) 1965 (b) 1969 (c) 1975 (d) 1983

**Q4.** WWW was developed by Tim Berners-Lee in which year?

(a) 1983 (b) 1985 (c) 1989 (d) 1993

**Q5.** The first public Internet service in India was introduced by:

(a) BSNL (b) NIC (c) VSNL (d) TATA

**Q6.** Dial-up connection has a maximum speed of:

(a) 1 Mbps (b) 56 kbps (c) 100 Mbps (d) 256 Kbps

**Q7.** ISDN stands for:

(a) Internet Service Digital Network (b) Integrated Services Digital Network (c) International Signal Digital Network (d) Integrated Short Digital Network

**Q8.** Which broadband connection uses electrical power lines to deliver internet access?

(a) DSL (b) Cable Broadband (c) BPL (d) Satellite

**Q9.** An IPv4 address is how many bits?

(a) 16 bits (b) 64 bits (c) 128 bits (d) 32 bits

**Q10.** A MAC address is usually how many bits?

(a) 32 bits (b) 64 bits (c) 48 bits (d) 128 bits

**Q11.** WWW is also known as:

(a) Web World Wide (b) Information Superhighway (c) Internet Protocol (d) Web Crawler

**Q12.** The correct structure of a URL is:

(a) Hostname, folder name, server type, file name (b) Server type, hostname, file name, folder name (c) Hostname, server type, folder name and file name (d) File name, server type, folder name, hostname

**Q13.** Which type of webpage updates based on user interaction or real-time data?

(a) Static web page (b) Dynamic web page (c) Fixed web page (d) Permanent web page

**Q14.** Cookies are most commonly used to:

(a) Speed up internet connection (b) Block malware (c) Identify return visitors to a website (d) Encrypt passwords

**Q15.** India's first web browser is:

(a) Google Chrome (b) Opera (c) UC Browser (d) Epic Browser

**Q16.** The first graphical web browser was:

(a) Netscape Navigator (b) Internet Explorer (c) Mosaic (d) Opera

**Q17.** Which protocol is used to send email?

(a) POP3 (b) IMAP (c) FTP (d) SMTP

**Q18.** Which protocol is used to retrieve email from server to computer?

(a) SMTP (b) HTTP (c) POP3 (d) FTP

**Q19.** The maximum file size that can be sent in an email is:

(a) 10 MB (b) 15 MB (c) 25 MB (d) 50 MB

**Q20.** Which email field hides the identity of recipients from others?

(a) To (b) From (c) CC (d) BCC

**Q21.** Which folder in a mailbox stores failed or unsent emails?

(a) Drafts (b) Spam (c) Trash (d) Outbox

**Q22.** Email was invented by Ray Tomlinson in:

(a) 1965 (b) 1969 (c) 1971 (d) 1983

**Q23.** Facebook was founded by:

(a) Jack Dorsey (b) Reid Hoffman (c) Mark Zuckerberg (d) Orkut Buyukkokten

**Q24.** Twitter was founded by:

(a) Mark Zuckerberg (b) Jan Koum (c) Reid Hoffman (d) Jack Dorsey

**Q25.** The world's first search engine is:

(a) Google (b) Yahoo (c) Archie (d) Bing

**Q26.** India's first search engine is:

(a) Rediff (b) Guruji.com (c) Ask.com (d) Yahoo India

**Q27.** The process of transmitting data from a satellite to a ground station is called:

(a) Uplink (b) Upload (c) Downlink (d) Download

**Q28.** MODEM stands for:

(a) Mode Emulator (b) Modulator-Demodulator (c) Minimum Emulator (d) Modern Data Module

**Q29.** Which technology allows real-time voice and video communication over the internet? (a) FTP (b) SMTP (c) VoIP (d) IMAP

**Q30.** Which social networking service places the biggest emphasis on professional networking?

(a) Facebook (b) Twitter (c) Instagram (d) LinkedIn

### **ANSWER KEY (Quick Reference)**

Q1-b | Q2-c | Q3-b | Q4-c | Q5-c | Q6-b | Q7-b | Q8-c | Q9-d | Q10-c | Q11-b | Q12-c | Q13-b | Q14-c | Q15-d | Q16-c | Q17-d | Q18-c | Q19-c | Q20-d | Q21-d | Q22-c | Q23-c | Q24-d | Q25-c | Q26-b | Q27-c | Q28-b | Q29-c | Q30-d