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EXPERT COMPUTER COURSE

ELECTRONIC MAIL

Topics Covered:

#	Topic
1	What is Electronic Mail — Introduction, History, Advantages
2	Mailbox — Inbox, Outbox, Sent, Drafts, Spam and All Folders
3	Email Address Structure and Components
4	Creating and Sending a New Email
5	CC vs BCC — Differences and When to Use
6	Attachments — Types, Limits, Best Practices
7	Forwarding, Replying, Sorting and Searching Emails
8	Document Collaboration via Email
9	Email Protocols — SMTP, POP3, IMAP4, MIME
10	Email Clients — Outlook, Netscape, Web-based Email
11	Email Encryption — S/MIME, PGP, TLS
12	Instant Messaging and Collaboration — Providers, Features
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14	Configuring Email on Mobile, Creating Groups, Message Formatting
15	Quick Revision + Important MCQ Questions

SECTION 1: WHAT IS ELECTRONIC MAIL (E-MAIL)?

1.1 Definition of E-mail

> *Electronic Mail (E-mail) is a method of exchanging digital messages between people using electronic devices over the Internet or a computer network. It allows users to send text messages, documents, images, audio, and video files to one or more recipients anywhere in the world instantly.*

Feature	Details
Speed	Delivered almost instantly — within seconds globally
Cost	Free with internet connection — no postal charges
Availability	24×7 — can send at any time; recipient reads when convenient
Storage	Messages stored on server — accessible from any device
Attachments	Files up to 25 MB (Gmail) attached and sent with message
Multiple Recipients	Send to hundreds at once using To, CC, BCC fields
Record Keeping	Complete history of communication maintained automatically
Global Reach	Reach anyone with an email address anywhere in the world

1.2 Brief History of Email

Year	Milestone
1971	Ray Tomlinson sent the first email between two computers on ARPANET — also introduced the '@' symbol in email addresses
1972	The '@' symbol established as separator between username and hostname
1988	First commercial email service launched
1996	Hotmail launched — first free web-based email; later acquired by Microsoft
1997	Microsoft acquired Hotmail; launched Outlook Express with Windows 98
2004	Gmail launched by Google (initially by invitation only) — introduced 1 GB free storage (revolutionary)
2007	Gmail opened to public; iPhone launched (mobile email became mainstream)
2023	Gmail has 1.8 billion users; becomes largest email service globally

1.3 Advantages and Disadvantages of Email

Advantages	Disadvantages
Free to use — no stamp or postal charge	Spam and junk email — inbox cluttered with unwanted messages
Instantaneous delivery worldwide	Phishing attacks — fake emails to steal credentials
Send to multiple people simultaneously	Requires internet connection to send/receive
Attach documents, images, files	Attachment size limit (25 MB in Gmail)

Advantages	Disadvantages
Permanent record of communication	Email overload — too many emails reduce productivity
Works 24×7 — asynchronous communication	Security risk — emails can be intercepted if not encrypted
Eco-friendly — paperless communication	Cannot guarantee recipient has read the email
Access from any device anywhere	Misunderstandings — tone and emotion can be misread in text

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SECTION 2: MAILBOX — ALL FOLDERS EXPLAINED

2.1 What is a Mailbox?

> *A Mailbox is the storage space assigned to an email user on the email server. It organises all incoming, outgoing, and saved emails into different folders so they can be easily managed.*

Folder	Description	What Goes Here
Inbox	Primary folder where all received emails arrive first	Emails sent to you by others — most important folder
Outbox	Temporary holding folder for emails waiting to be sent	Emails you have composed and clicked Send — queued for transmission; usually empty once sent
Sent / Sent Items	Stores copies of all emails you have successfully sent	Every email you send is automatically saved here for reference
Drafts	Saves emails you have started composing but NOT yet sent	Incomplete emails saved automatically or manually — continue writing later
Spam / Junk Mail	Holds emails detected as unsolicited bulk email (spam)	Newsletters, promotional bulk emails, phishing attempts, suspicious senders
Trash / Deleted Items	Holds emails you have deleted from other folders	Deleted emails stay here before permanent deletion — 30 days in Gmail
Archive	Stores emails you want to keep but don't want cluttering Inbox	Old important emails — still searchable but removed from Inbox view
Starred / Important	Emails you have marked for attention	Flagged emails needing follow-up or reference
Custom Folders / Labels	User-created folders to organise email by topic, project, or sender	Work, Personal, Finance, College — organise as per your needs

> **Inbox vs Outbox:** Inbox = emails RECEIVED. Outbox = emails WAITING to be sent (usually empty). Sent = emails already sent successfully. Drafts = incomplete unsent emails.

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SECTION 3: EMAIL ADDRESS STRUCTURE

3.1 Anatomy of an Email Address

> *An email address is a unique identifier for an email account, consisting of a username, the '@' symbol, and a domain name. Example: ajay.sharma@gmail.com*

Example: ajay.sharma @ gmail . com

Part	Example	Description
Local Part / Username	ajay.sharma	Identifies the specific account holder within that domain. Can contain letters, numbers, dots, underscores, hyphens.
@ Symbol	@	Separator between username and domain — introduced by Ray Tomlinson in 1971. Read as 'at'.
Domain Name	gmail	The mail server/organisation that hosts the email account
Top Level Domain (TLD)	.com	Indicates type (.com=commercial, .org=organisation, .edu=education, .gov=government, .in=India)
Full Address	ajay.sharma@gmail.com	Complete unique email address — no two users can have the same address on the same domain

3.2 Email Address Rules

- Case insensitive: ajay@gmail.com and AJAY@GMAIL.COM are the same
- Can contain: letters (a-z), numbers (0-9), dots (.), underscores (_), hyphens (-)
- Cannot contain: spaces, @, !, #, $, %, ^, &, *, (,) in username part
- Cannot start or end with a dot (.); cannot have two consecutive dots (..)
- Dots in Gmail username are ignored: a.jay@gmail.com = ajay@gmail.com in Gmail
- Maximum length: 254 characters total (64 for username + 1 for @ + 189 for domain)

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SECTION 4: CREATING AND SENDING A NEW EMAIL

4.1 Steps to Create and Send an Email (Gmail Example)

Step	Action	Details
1	Open Gmail	Go to gmail.com → sign in with your Google account
2	Click Compose	Click the 'Compose' button (bottom-left) — new email window opens
3	Enter Recipient (To)	Type recipient's email address in 'To' field; press Enter for multiple recipients
4	Add CC (if needed)	Click 'Cc' link → type addresses of people who should receive a copy
5	Add BCC (if needed)	Click 'Bcc' link → type addresses of recipients to be hidden from others
6	Write Subject Line	Type a clear, concise subject — e.g., 'Meeting Agenda for Monday 27 May'
7	Write Message Body	Type the main message in the large text area
8	Format Text (optional)	Use toolbar: Bold (Ctrl+B), Italic (Ctrl+I), font size, colour, lists, alignment
9	Add Attachment (optional)	Click paperclip icon → browse and select file(s) from computer
10	Add Signature (optional)	Pre-set signature added automatically or click at bottom
11	Send	Click 'Send' button — email delivered to recipient(s) instantly

4.2 Parts of an Email Message

Email Part	Description	Example / Notes
From	Sender's email address — automatically filled	ajay.sharma@gmail.com (your address)
To	Primary recipient(s) — who the email is mainly for	teacher@school.edu
CC (Carbon Copy)	Secondary recipients who should be kept informed — visible to all	hod@school.edu — sees the CC list
BCC (Blind Carbon Copy)	Hidden copy recipients — their identity hidden from others	admin@school.edu — not visible to others
Subject	Brief, descriptive title of the email — crucial for clarity	'Assignment Submission — Computer Networks'
Date & Time	Automatically stamped when email is sent	Mon, 27 May 2026, 10:30 AM
Body / Message	Main content of the email — greeting, message, closing	Dear Sir, Please find attached...
Signature	Sender's name, designation, contact — typically at end	Ajay Sharma | BCA 2nd Year | 9876543210

Email Part	Description	Example / Notes
Attachment	File(s) attached to the email — icon visible in email	report.pdf, photo.jpg, data.xlsx

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SECTION 5: CC VS BCC — THE IMPORTANT DIFFERENCE

5.1 CC — Carbon Copy

> *CC (Carbon Copy) sends a copy of the email to additional recipients. All recipients in the To and CC fields can see each other's email addresses. Use CC when everyone should know who else has received the email.*

- The term 'Carbon Copy' comes from typewriter days when carbon paper was used to make duplicate copies
- Use CC for: Keeping manager informed, looping in relevant colleagues, transparency in communication
- CC recipients are NOT the primary audience — they receive information only; action expected from 'To' recipient
- All recipients (To, CC) can see the full CC list

5.2 BCC — Blind Carbon Copy

> *BCC (Blind Carbon Copy) sends a hidden copy to recipients whose identities are concealed from all other recipients. Nobody in To, CC, or BCC can see who else received BCC copy.*

- 'Blind' = the copy is sent secretly — other recipients cannot see BCC addresses
- Use BCC for: Sending mass emails to a list while protecting privacy of all email IDs, including yourself on a copy discreetly, initial introductions where parties haven't met
- Mass email without BCC = sharing all subscribers' emails with each other = privacy violation

5.3 CC vs BCC Comparison Table

Feature	CC (Carbon Copy)	BCC (Blind Carbon Copy)
Visibility	Visible to all recipients in To and CC fields	Hidden — no recipient can see BCC addresses
Privacy	No privacy — all email IDs exposed to each other	Complete privacy — email IDs not exposed
Best Use	Team communication, keeping manager in loop, professional transparency	Mass emails, newsletters, protecting subscriber privacy
Reply All	BCC recipients receive original email; if they Reply All, only they see own reply	If BCC recipient clicks Reply All, they reply to To+CC only (not other BCC recipients)
Notification	To and CC recipients know who else got the email	No one knows who else received BCC copy
Example	Email to client; CC your manager	Monthly newsletter to 500 subscribers — all in BCC

> **Exam Tip:** CC = visible to all (transparency). BCC = hidden (privacy). For mass emails, ALWAYS use BCC to protect all email IDs. If you Reply All to an email where you are in BCC, be careful — others will see your reply.

SECTION 6: EMAIL ATTACHMENTS

6.1 What is an Email Attachment?

> *An email attachment is a file that is sent along with an email message. The file is encoded and transmitted with the email, allowing the recipient to save and open it on their device.*

Attachment Type	Common File Formats	Use Case
Documents	PDF, DOCX, XLSX, PPTX, TXT, ODT	Assignment submission, reports, resumes, contracts
Images	JPG, PNG, GIF, BMP, TIFF	Photographs, screenshots, diagrams, artwork
Audio	MP3, WAV, AAC, FLAC	Voice messages, music, recordings
Video	MP4, AVI, MOV, MKV	Video clips, presentations, demos
Compressed Files	ZIP, RAR, 7Z	Multiple files combined into one; reduces size
Executable	EXE, MSI, APK	Programs — CAUTION: security risk, many email clients block these
Web Files	HTML, XML	Web pages, data files

6.2 Attachment Limits and Best Practices

Email Service	Maximum Attachment Size	Note
Gmail	25 MB per email	Larger files: Gmail automatically links to Google Drive
Outlook.com	20 MB per email	Larger: link to OneDrive
Yahoo Mail	25 MB per email	Larger: link to Dropbox or cloud
Corporate Email (Exchange)	10-50 MB (varies by IT policy)	IT admin sets limits for organisation

- For large files: Use Google Drive, OneDrive, Dropbox link instead of attaching directly
- Compress files: Use ZIP to reduce size before attaching multiple files
- Rename meaningfully: 'Ajay_Assignment_Networks.pdf' is better than 'doc1.pdf'
- Mention in email body: Always reference attachments in the email text — 'Please find attached...'
- Virus risk: Never open attachments from unknown senders — major source of malware
- Check before sending: Click Send → 'Wait, did you forget to attach?'

SECTION 7: REPLY, FORWARD, SORT AND SEARCH EMAILS

7.1 Reply vs Reply All vs Forward

Action	Who Receives	When to Use	Shortcut
Reply	ONLY the sender of the email	Your response is relevant only to the person who wrote to you	Ctrl+R (Outlook)
Reply All	Sender + ALL recipients in To and CC	Your response is relevant to all parties in the conversation	Ctrl+Shift+R (Outlook)
Forward	New recipient(s) you choose	Share the email with someone who wasn't in the original conversation	Ctrl+F (Outlook)

- Reply All can be dangerous: only use when your reply is genuinely relevant to everyone
- 'Reply All storms': one mass email → hundreds Reply All with 'Thanks' → inbox overload
- When forwarding: add context in the message body about why you're forwarding this email

7.2 Sorting Emails

> *Sorting arranges emails in a specific order to make finding them easier. Most email clients allow sorting by multiple criteria.*

Sort By	Description	When Useful
Date (Newest First)	Most recent emails at top — default view	Finding latest emails quickly
Date (Oldest First)	Oldest emails at top — chronological	Following a conversation from start
Sender	Alphabetically by sender name/email	Finding all emails from one person
Subject	Alphabetically by subject line	Finding emails on a specific topic
Size	Largest emails first	Finding emails with large attachments to free up space
Unread	Unread emails at top or highlighted	Finding emails you haven't read yet
Starred/Flagged	Marked important emails grouped	Quickly finding flagged emails

7.3 Searching Emails

Search Operator (Gmail)	Example	What It Finds
from:	from:teacher@school.edu	All emails from that specific sender
to:	to:ajay@gmail.com	All emails you sent to that address
subject:	subject:assignment	Emails with 'assignment' in subject line
has:attachment	has:attachment	All emails with attachments

Search Operator (Gmail)	Example	What It Finds
filename:	filename:pdf	Emails with PDF attachments specifically
after:	after:2024/01/01	Emails received after 1 January 2024
before:	before:2024/12/31	Emails received before 31 December 2024
is:unread	is:unread	All unread emails
is:starred	is:starred	All starred/important emails
label:	label:work	Emails with specific label
in:spam	in:spam	Search inside spam folder
larger:	larger:5M	Emails larger than 5 MB
Combine operators	from:boss subject:urgent	Emails from boss with 'urgent' in subject

7.4 Document Collaboration via Email

> *Document Collaboration means multiple people working on the same document. Email can facilitate this, though cloud-based collaboration tools are now more efficient.*

- Traditional method: Email document → recipient edits → sends back → merge changes manually
- Problem: Multiple versions, track changes confusion, 'final_FINAL_v3.docx' syndrome
- Modern solution: Share Google Drive / OneDrive link via email — everyone edits same file in real-time
- Google Workspace: Share Google Doc link → set 'Editor' permission → team collaborates live with comments
- Microsoft 365: Share OneDrive link → all editors see each other's changes with @mentions
- Version history: Both Google Docs and OneDrive track all changes with timestamps and author names

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SECTION 8: EMAIL PROTOCOLS — SMTP, POP3, IMAP4, MIME

8.1 Overview of Email Protocols

> *Email protocols are standardised sets of rules that govern how emails are sent, received, and stored between mail servers and email clients. Different protocols handle different parts of the email process.*

Protocol	Full Form	Port	Direction	Function
SMTP	Simple Mail Transfer Protocol	25 (server-to-server) / 587 (client-to-server)	OUTGOING — Sending	Used to send emails from your email client to the mail server, and between mail servers. It is a 'push' protocol.
POP3	Post Office Protocol version 3	110 (plain) / 995 (SSL)	INCOMING — Receiving	Downloads emails from mail server to local device and typically DELETES them from server. Suitable for accessing from one device only.
IMAP4	Internet Message Access Protocol version 4	143 (plain) / 993 (SSL)	INCOMING — Receiving	Reads emails stored on server — does NOT delete from server. Syncs across all devices. Modern standard for accessing email.
MIME	Multipurpose Internet Mail Extensions	Used with SMTP	Content Encoding	Extends email format to support: non-ASCII text (Hindi, Arabic), attachments, HTML email, multimedia content. Makes 'rich email' possible.

8.2 SMTP — Simple Mail Transfer Protocol

> *SMTP is the standard protocol for SENDING emails. When you click Send, your email client uses SMTP to transmit the email to your mail server, which then routes it to the recipient's mail server.*

Feature	Details
Purpose	Sending email — outgoing mail protocol only
Port Numbers	Port 25: Server-to-server (MTA to MTA). Port 587: Client-to-server (submission). Port 465: SMTPS (legacy SSL).
Process	Email client → SMTP server (outgoing) → DNS lookup for recipient domain → recipient's SMTP server → recipient's mailbox
Authentication	SMTP AUTH — requires username and password to prevent spam relay abuse
Limitations	SMTP can only send plain text originally — MIME extends it for attachments/HTML
Example	When you send from Gmail: your browser/app → Gmail's SMTP server (smtp.gmail.com:587) → recipient's mail server

8.3 POP3 — Post Office Protocol Version 3

> *POP3 is an email receiving protocol that downloads emails from the mail server to the local device and (by default) deletes them from the server. Like physically going to a post office and taking your letters home.*

Feature	Details
Purpose	Download emails from server to local device
Port Numbers	Port 110: unencrypted. Port 995: SSL/TLS encrypted (POP3S)
Storage	Emails stored LOCALLY on your computer after download. Server copy usually deleted.
Multi-device	NOT suitable — emails on one device only. If you read on phone, computer won't see it.
Offline Access	Works offline after download — can read without internet
Best For	Single device users who want local storage and offline access
Configuration Example	Incoming server: pop.gmail.com Port 995 SSL

8.4 IMAP4 — Internet Message Access Protocol Version 4

> *IMAP4 is the modern email receiving protocol that keeps emails stored on the server and syncs across all devices. Like a cloud filing cabinet — all your devices see the same emails.*

Feature	Details
Purpose	Read and manage emails stored on server — syncs across all devices
Port Numbers	Port 143: unencrypted. Port 993: SSL/TLS encrypted (IMAPS)
Storage	Emails stay on SERVER — downloaded/cached locally as needed
Multi-device	Perfect for multiple devices — phone, laptop, tablet all see same inbox
Sync	Read, delete, move, or flag on any device — changes reflected everywhere
Folder Sync	All email folders (Inbox, Sent, Drafts) synced on server — visible on all devices
Best For	Anyone using email on multiple devices — recommended for all modern use
Configuration Example	Incoming server: imap.gmail.com Port 993 SSL

8.5 POP3 vs IMAP4 Comparison

Feature	POP3	IMAP4
Storage	Local device (downloaded)	Server (cloud)
Multiple Devices	Poor — one device only	Excellent — all devices synced
Internet Required	Only for initial download	Yes — for accessing server
Offline Access	Yes (after download)	Limited (cached only)

Feature	POP3	IMAP4
Server Space	Minimal (deleted after download)	Uses server storage (quota)
Email Folders	Not synced — local only	Fully synced across all devices
Recommended For	Single device, offline access needed	Multiple devices, modern usage
Default Port	110 (unencrypted), 995 (SSL)	143 (unencrypted), 993 (SSL)

> **Exam Tip:** SMTP = Send mail (port 25/587). POP3 = Download and delete from server (port 110/995) — one device. IMAP4 = Sync, server-stored (port 143/993) — multiple devices. MIME = enables attachments and HTML email.

8.6 MIME — Multipurpose Internet Mail Extensions

> *MIME (Multipurpose Internet Mail Extensions) is an internet standard that extends the basic email format to support: non-ASCII characters (Hindi, Chinese, Arabic), attachments (binary files), and multiple content types (HTML, images, audio) in a single message.*

MIME Feature	Description	Without MIME
Non-ASCII Characters	Supports Hindi, Chinese, Arabic, emojis in email	Only English ASCII characters possible
Attachments	Encodes binary files (PDF, images) as text for email transmission	Only plain text could be sent
HTML Email	Enables formatted emails with fonts, colours, images, links	Only plain text email
Multiple Parts	Single email can have plain text + HTML + attachments simultaneously	One content type only
Content-Type Header	Specifies: text/plain, text/html, image/jpeg, application/pdf	No content type metadata
Base64 Encoding	Binary files encoded as text stream — decoded by recipient's client	Binary files could not be transmitted via SMTP

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SECTION 9: EMAIL CLIENTS — OUTLOOK, NETSCAPE, WEB-BASED

9.1 What is an Email Client?

> *An Email Client is software that allows users to send, receive, read, and manage emails. It communicates with the mail server using email protocols (SMTP, IMAP/POP3). Email clients can be desktop applications, mobile apps, or web-based.*

Type	Description	Examples
Desktop Email Client	Software installed on computer — manages email locally or via server	Microsoft Outlook, Mozilla Thunderbird, Apple Mail
Web-based Email Client	Accessed via web browser — no installation needed	Gmail, Outlook.com, Yahoo Mail, Rediffmail
Mobile Email App	App on smartphone for email management	Gmail app, Outlook app, Samsung Email, iOS Mail
Enterprise Email Client	Advanced clients for corporate environments	Microsoft Exchange + Outlook, IBM Notes (Lotus Notes)

9.2 Microsoft Outlook (and Outlook Express)

> *Microsoft Outlook is the most widely used professional email client, included in Microsoft Office suite. It manages email, calendar, contacts, tasks, and notes in one application. Outlook Express was a simpler, free version included with Windows 98-XP (now discontinued).*

Feature	Outlook (Full)	Outlook Express (Legacy)
Status	Current — part of Microsoft 365	Discontinued — replaced by Windows Mail
Included With	Microsoft Office / Microsoft 365	Windows 98, ME, 2000, XP (built-in)
Email	Full email with rules, categories, search	Basic email — send, receive, organise
Calendar	Full calendar with meetings, reminders, sharing	Not available
Contacts	Full contacts/address book with groups	Basic address book
Tasks/Notes	Full task management and sticky notes	Not available
Features	Focused Inbox, Sweep, @mention, offline access	Basic email management only
Protocol Support	IMAP, POP3, SMTP, Exchange ActiveSync	POP3, SMTP (limited IMAP)

Microsoft Outlook Key Features

- Focused Inbox: AI automatically separates important emails from less important ones
- Rules: Auto-move, forward, flag, or delete emails matching certain criteria
- Categories: Colour-code emails for easy visual organisation

- Quick Steps: One-click actions to perform multiple steps (reply + move + mark read)
- Offline Access: Download emails for reading without internet
- Integration: Seamless integration with Teams, SharePoint, OneDrive, Microsoft 365 apps
- Read Receipts: Request notification when recipient opens the email
- Delay Delivery: Schedule emails to be sent at a specific time

9.3 Netscape Mail (Navigator Mail)

> *Netscape Mail was the email client integrated into Netscape Navigator, the dominant web browser of the 1990s. It was one of the first graphical email clients for the general public. Netscape Navigator was discontinued in 2008 and its open-source code became the basis for Mozilla Firefox and Thunderbird.*

Feature	Details
Parent Application	Netscape Navigator (web browser) — integrated email client
Era	Popular in 1995-2003 — dominated internet before Internet Explorer
Successor	Mozilla Thunderbird — open-source successor to Netscape Mail, actively maintained
Historical Significance	First mass-market GUI email client; pioneered many email features we use today
Current Status	Discontinued — Netscape brand and code now part of Mozilla project

9.4 Mozilla Thunderbird (Successor to Netscape Mail)

- Free, open-source desktop email client maintained by Mozilla Foundation
- Supports: IMAP, POP3, SMTP, news feeds (RSS), calendar (via Lightning extension)
- Features: Spam filtering, message tagging, smart folders, encryption (S/MIME, OpenPGP)
- Cross-platform: Available for Windows, Mac, and Linux
- Highly customisable via themes and extensions

9.5 Web-Based Email (Webmail)

> *Web-based email (Webmail) is accessed through a web browser — no software installation required. The email is stored and managed on the provider's servers, accessible from any device with internet.*

Webmail Provider	Company	Storage (Free)	Key Feature
Gmail	Google	15 GB (shared with Drive)	Powerful search, Google integration, 1.8 billion users
Outlook.com / Hotmail	Microsoft	15 GB (shared with OneDrive)	Integration with Office Online, Microsoft 365
Yahoo Mail	Yahoo/Verizon	1 TB (1000 GB)	Massive free storage; built-in news and finance
Rediffmail	Rediff.com	2 GB	Popular Indian webmail service

Webmail Provider	Company	Storage (Free)	Key Feature
ProtonMail	Proton AG, Switzerland	1 GB (free)	End-to-end encrypted by default — privacy focused
Zoho Mail	Zoho Corporation	5 GB (free)	Business email; strong privacy; no ads
iCloud Mail	Apple	5 GB (shared with iCloud)	Integrated with Apple devices and services

Webmail vs Desktop Client Comparison

Feature	Webmail (Gmail)	Desktop Client (Outlook)
Installation	None — browser only	Software installation required
Access	Any device, any browser	Installed device primarily
Offline Access	Limited (Gmail offline mode)	Full offline access
Storage	Server-based (15 GB Gmail)	Local + server storage
Updates	Automatic — always latest	Manual/auto updates needed
Integration	Calendar, Drive, Meet, Docs	Office 365, Teams, SharePoint
Cost	Free (basic)	Paid (Microsoft 365 subscription)
Best For	Personal, casual, web-first	Professional, corporate, power users

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SECTION 10: EMAIL ENCRYPTION

10.1 Why Email Encryption Is Important

> *Email encryption protects the content of email messages from being read by anyone except the intended recipient. Without encryption, emails travel across the internet as readable plain text — like a postcard anyone can read.*

Risk Without Encryption	Description	Solution
Man-in-the-Middle Attack	Attacker intercepts emails in transit between servers	TLS encryption on all connections
Server Compromise	Email provider's server hacked — all stored emails exposed	End-to-end encryption (S/MIME or PGP)
Eavesdropping on Network	Attacker monitors network traffic and reads emails	TLS/HTTPS ensures encrypted transmission
Email Provider Reading	Provider technically can read emails in transit	End-to-end encryption ensures only sender+recipient can read

10.2 Types of Email Encryption

Encryption Method	Full Form	How It Works	Used By
TLS	Transport Layer Security	Encrypts the connection between mail servers — like HTTPS for email. Protects email in TRANSIT. Most email providers use TLS automatically.	All major email providers — Gmail, Outlook, Yahoo — by default
S/MIME	Secure/Multipurpose Internet Mail Extensions	Public key cryptography — sender encrypts with recipient's public key; recipient decrypts with private key. Also digitally signs emails. Both parties need digital certificates.	Corporate email, Microsoft Outlook, Apple Mail — enterprise environments
PGP / OpenPGP	Pretty Good Privacy	Public key cryptography — similar to S/MIME but uses web of trust instead of central CA. Sender encrypts with recipient's public key. Popular in open-source community.	Journalists, activists, security researchers, ProtonMail uses variant
End-to-End Encryption (E2EE)	—	Only sender and recipient can decrypt. Email provider cannot read content. Content encrypted on sender's device, decrypted only on recipient's device.	ProtonMail, Tutanota, Signal (for messages)
SSL/TLS for SMTP/IMAP	—	Encrypts the connection between your email client and the mail server (port 993 for IMAPS, 587 for SMTP with STARTTLS)	All modern email clients — Outlook, Thunderbird, Gmail app

> **Exam Tip:** TLS = encrypts connection in transit (like HTTPS). S/MIME = certificate-based end-to-end (Outlook enterprise). PGP = key-based end-to-end (open source, journalists). Always use SSL/TLS ports: IMAPS=993, POP3S=995, SMTPS=587.

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SECTION 11: INSTANT MESSAGING AND COLLABORATION

11.1 What is Instant Messaging?

> *Instant Messaging (IM) is real-time text, audio, and video communication between two or more users over the internet. Unlike email which is asynchronous (send and wait), IM is synchronous — both parties communicate simultaneously.*

Feature	Email	Instant Messaging
Speed	Minutes to hours (asynchronous)	Instant — real-time (synchronous)
Formality	Formal — subject line, greeting, signature	Informal — short, conversational
Presence Indicator	No — cannot tell if online	Yes — online/offline/busy/away status
Message Length	Long — multi-paragraph common	Short — a few words or sentences
File Transfer	Attachments (size limit)	Direct file sharing, often faster
Group Chat	CC/BCC method	Dedicated group chats, channels
Read Receipts	Optional, not always reliable	Often shown (double tick, 'Seen')
Archiving	Automatic on server	Varies — some platforms store history, some don't

11.2 Instant Messaging Providers

Platform	Best For	Key Features	Security
WhatsApp (Meta)	Personal and business messaging in India and globally	End-to-end encrypted, voice/video calls, groups, status, WhatsApp Business	End-to-end encryption by default (Signal protocol)
Telegram	Large groups, channels, file sharing, bots	Groups up to 200,000, channels, bots, 2GB file sharing, self-destruct messages	Client-server encryption; optional end-to-end in Secret Chats
Signal	Maximum privacy and security	End-to-end encrypted, disappearing messages, no ads, no data collection	Strongest — open source, end-to-end everything
Microsoft Teams	Business/enterprise team collaboration	Channels, meetings, file co-editing (SharePoint), Office 365 integration	Enterprise-grade encryption, compliance features
Slack	Professional team communication	Channels by topic, threads, 2,500+ app integrations, powerful search	Enterprise encryption, SOC 2 compliance
Google Chat	Google Workspace users	Spaces (group chats), direct messages, Google Drive integration	TLS and Google's security standards
Discord	Gaming communities and hobby groups	Voice channels, screen share, communities (servers), roles, bots	TLS encryption; not end-to-end
iMessage	Apple device users only	Blue bubble (encrypted) vs green (SMS), reactions, effects, FaceTime	End-to-end encrypted between Apple devices

11.3 Collaboration Using IM and Tools

- Document Co-editing: Google Docs/Sheets/Slides — multiple users edit simultaneously; see each other's cursors
- Screen Sharing: Zoom, Teams, Google Meet — share screen for remote presentations and support
- Virtual Meetings: Video calls for team discussions, webinars, online classes
- Project Channels: Slack/Teams channels dedicated to specific projects — all communication in one place
- Task Assignment: Assign tasks via IM, set deadlines, track completion with Asana/Jira integration
- File Sharing: Share documents directly in chat — Telegram (2GB), Teams (up to 250 GB via SharePoint)

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SECTION 12: NETIQUETTES — ONLINE COMMUNICATION ETIQUETTE

12.1 What are Netiquettes?

> *Netiquette (Network + Etiquette) refers to the rules of proper behaviour and courtesy when communicating online — through email, instant messaging, social media, forums, and video calls. It is the digital equivalent of social manners.*

12.2 Email Netiquettes — Do's and Don'ts

DO ✓	DON'T ✗
Write a clear, descriptive subject line	Leave subject line blank or write vague subjects like 'Hi' or 'Important'
Start with a proper greeting (Dear Sir/Ma'am)	Begin email without any greeting — seems rude
Keep email concise and to the point	Write extremely long, rambling emails — people won't read fully
Use proper grammar, spelling, and punctuation	Use text/chat language (u r, gr8, lol) in professional emails
Use BCC when emailing large groups	Put everyone in CC/To — exposes all email IDs
Reply within 24-48 hours (for professional email)	Leave emails unanswered for days/weeks
Mention attachments in email body	Attach file without mentioning it in body
Proofread before sending	Send email with spelling errors and typos
Use professional email signature	No signature — recipient doesn't know who you are
Be respectful and polite in tone	Write aggressively or sarcastically — tone is easily misread in text

12.3 Instant Messaging Netiquettes

DO ✓	DON'T ✗
Check if person is available before starting a conversation	Send message and then immediately call — give time to respond
Keep messages short and on-topic	Send 20 separate one-word messages — message fragmentation annoying
Respect working hours — don't message at midnight for non-urgent matters	Message at 2 AM expecting instant reply
Use status indicators honestly (available/busy)	Show 'Available' when you don't want to respond
Use group chat for relevant topics only	Send irrelevant jokes/forwards to professional group chats
Acknowledge important messages with a reply	Leave messages on 'Seen' without any response (reply or reason)
Ask permission before adding someone to a group	Add people to groups without their consent

12.4 General Online Communication Netiquettes

- AVOID ALL CAPS: Writing in ALL CAPITALS is the digital equivalent of SHOUTING — perceived as aggressive
- Golden Rule: Treat others online as you would treat them face to face
- Think before you send: Once sent, it cannot be taken back — a harsh email or message can damage relationships
- Emoji use: Appropriate in personal/informal messages; avoid in formal professional emails
- No flaming: 'Flaming' = posting hostile, aggressive messages intended to upset someone — unacceptable
- Respect privacy: Don't share private conversations publicly; don't forward someone's private email without permission
- Cite sources: If sharing information, mention where it came from — don't spread unverified information
- No spamming: Don't send unsolicited bulk messages — group forwards, chain messages are forms of spam

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SECTION 13: CONFIGURING EMAIL ON MOBILE, GROUPS, MESSAGE FORMATTING

13.1 Configuring Email on Mobile

> *Configuring email on a mobile device means setting up your email account in the phone's email app so you can send, receive, and manage emails on your smartphone.*

Step	Action	Details
1	Open Email App or Gmail	Android: Gmail app built-in; iPhone: Mail app or download Gmail
2	Add Account	Settings → Add Account → choose email type (Google, Outlook, Yahoo, Other)
3	Enter Email Address	Type your complete email address
4	Enter Password	Type your email password or use app-specific password if 2FA enabled
5	Choose Protocol	Select IMAP (recommended for multiple devices) or POP3
6	Enter Server Settings (if manual)	Incoming: imap.gmail.com, Port 993, SSL. Outgoing: smtp.gmail.com, Port 587, TLS
7	Sync Options	Choose sync frequency: Push (instant) or Fetch (every 15/30/60 minutes)
8	Notifications	Enable notifications for new emails; set priority senders for important alerts
9	Complete Setup	Account added — all emails sync to phone

Common Mobile Email Settings

Provider	Incoming (IMAP)	Port	Outgoing (SMTP)	Port
Gmail	imap.gmail.com	993 (SSL)	smtp.gmail.com	587 (TLS)
Outlook/Hotmail	outlook.office365.com	993 (SSL)	smtp.office365.com	587 (TLS)
Yahoo Mail	imap.mail.yahoo.com	993 (SSL)	smtp.mail.yahoo.com	587 (TLS)
Rediffmail	imap.rediffmail.com	993 (SSL)	smtp.rediffmail.com	587 (TLS)

13.2 Creating Email Groups

> *An Email Group (also called a mailing list or distribution list) is a collection of email addresses stored under one name. When you send email to the group, all members receive it without having to type each address individually.*

- Gmail: Google Contacts → Create Label → Add contacts → Use label name as email address when composing
- Outlook: Home → New Items → More Items → Contact Group → add members → save → use group name in To field

- Google Groups (groups.google.com): Create group for organisation/team — group has its own email address
- Benefits: Save time for repetitive sends; ensure no one is accidentally missed; easy list management
- WhatsApp Group: Open WhatsApp → New Group → add contacts → set group name and icon → create

13.3 Message Formatting

Formatting Element	How to Apply	When to Use
Bold	Gmail: Ctrl+B or toolbar. WhatsApp: *text*	Highlight important information, headings
Italic	Gmail: Ctrl+I. WhatsApp: _text_	Emphasis, book titles, technical terms
Underline	Gmail: Ctrl+U	Links, key terms (use sparingly)
Strikethrough	Gmail: toolbar. WhatsApp: ~text~	Show deleted/corrected text
Bullet List	Gmail: toolbar bullet button	Steps, multiple items, lists
Numbered List	Gmail: toolbar number button	Sequential steps, ranked items
Font Size	Gmail: toolbar size selector	Headings larger, body text standard
Text Colour	Gmail: toolbar colour button	Highlight critical information (use sparingly)
Monospace/Code	WhatsApp: `code`	Show code, commands, technical content

13.4 Do's and Don'ts Using Mobile for Email/Messaging

DO ✓	DON'T ✗
Lock your phone with PIN/biometric — protect email if phone is lost	Leave phone unlocked — anyone can access your email
Enable 2FA (Two-Factor Authentication) on email accounts	Use only password — if stolen, account compromised
Use official apps (Gmail app, Outlook app) from Play Store/App Store	Download email apps from unknown/unofficial sources — risk of malware
Log out of email on shared/public devices	Stay logged in on borrowed devices — privacy risk
Set up Remote Wipe — erase phone data if lost	Leave no backup plan if phone is stolen
Verify before clicking links in emails on mobile — phishing risk higher	Tap links in emails without checking the actual URL first
Use Wi-Fi for large attachments — saves mobile data	Download multiple large attachments on mobile data — expensive
Keep email app updated — security patches	Ignore app updates — miss important security fixes

SECTION 14: QUICK REVISION POINTS

Key Points for Exam

Email Basics

- Email address format: username@domain.tld (e.g., ajay@gmail.com)
- Inbox = received. Outbox = waiting to send. Sent = already sent. Drafts = unsent saved.
- CC = visible to all. BCC = hidden from all — use for mass emails to protect privacy
- MIME = enables attachments and HTML email over SMTP

Email Protocols

- SMTP = Send email (port 25 server-to-server, 587 client-to-server) — outgoing only
- POP3 = Download and delete from server (port 110/995) — one device only
- IMAP4 = Sync with server (port 143/993) — multiple devices, recommended
- MIME = Enables non-ASCII, attachments, HTML in email — works WITH SMTP

Email Clients & Encryption

- Webmail = browser-based (Gmail, Outlook.com, Yahoo). Desktop = installed software (Outlook, Thunderbird)
- Netscape Mail = first GUI email client (1990s). Successor = Mozilla Thunderbird (free, open-source)
- TLS = encrypts connection in transit. S/MIME = certificate-based E2E (Outlook). PGP = key-based E2E (open source)

Netiquettes & IM

- Netiquette = online etiquette. CAPS = shouting. Be polite, concise, proofread.
- IMAP ports: 993 (SSL). SMTP port: 587 (TLS). POP3 port: 995 (SSL)
- Instant Messaging: Real-time (synchronous). Email: Asynchronous. WhatsApp, Telegram, Teams, Signal.

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SECTION 15: IMPORTANT MCQ QUESTIONS

Multiple Choice Questions (MCQs)

> *20 important exam questions. Correct answer marked with ✓ and explanation provided.*

Q1. SMTP stands for and is used for:

(a) Standard Mail Transfer Protocol — receiving email
(b) Simple Mail Transfer Protocol — sending email ✓
(c) Secure Mail Transfer Protocol — encrypting email
(d) Simple Message Transfer Protocol — all email functions

Explanation: *SMTP = Simple Mail Transfer Protocol. It is used for SENDING emails — from your email client to your mail server, and between mail servers. Port 25 (server-to-server) and Port 587 (client-to-server).*

Q2. Which email protocol downloads emails to the local device and typically removes them from the server?

(a) IMAP4
(b) SMTP
(c) POP3 ✓
(d) MIME

Explanation: *POP3 (Post Office Protocol version 3) downloads emails from the server to the local device and (by default) deletes them from the server. This makes it suitable for single-device email access only.*

Q3. IMAP4 is preferred over POP3 because:

(a) IMAP4 is faster for downloading emails
(b) IMAP4 syncs emails across multiple devices from the server ✓
(c) IMAP4 stores email locally for offline access
(d) IMAP4 sends emails faster

Explanation: *IMAP4 (Internet Message Access Protocol) keeps emails on the server and syncs across all devices — phone, laptop, tablet all see the same inbox. POP3 downloads to one device only, making multi-device access impossible.*

Q4. BCC in email stands for and means:

(a) Basic Carbon Copy — same as CC
(b) Blind Carbon Copy — hidden recipients not visible to others ✓
(c) Block Copy Correspondence — blocks forwarding
(d) Background Copy Control — sends copy in background

Explanation: *BCC = Blind Carbon Copy. Recipients added to BCC receive the email but their addresses are hidden from all other recipients (To, CC, and other BCC recipients). Essential for mass emails to protect subscriber privacy.*

Q5. MIME in email enables:

(a) Faster email delivery speed
(b) Non-ASCII characters, attachments, and HTML content in emails ✓
(c) Email encryption and security
(d) Email routing between servers

Explanation: *MIME (Multipurpose Internet Mail Extensions) extends email to support: non-ASCII characters (Hindi, emojis), file attachments (PDF, images), HTML formatted email, and multiple content types in one message.*

Q6. Which folder stores emails you have started writing but NOT yet sent?

(a) Inbox

(b) Outbox
(c) Drafts ✓
(d) Sent

Explanation: *Drafts folder saves incomplete emails — ones you have started composing but not yet sent. Outbox holds emails queued for sending. Sent holds successfully transmitted emails. Inbox holds received emails.*

Q7. Netiquette means:

(a) Internet network protocol standards
(b) Proper etiquette and behaviour rules for online communication ✓
(c) Network security guidelines
(d) Internet service quality standards

Explanation: *Netiquette (Network + Etiquette) refers to the rules of proper, courteous behaviour when communicating online — through email, IM, social media, and forums. The Golden Rule: treat others online as you'd treat them face to face.*

Q8. Which of the following is a web-based email service?

(a) Microsoft Outlook (desktop app)
(b) Mozilla Thunderbird
(c) Gmail (gmail.com) ✓
(d) Netscape Mail

Explanation: *Gmail (gmail.com) is a web-based email service — accessed through a web browser without installing any software. Outlook and Thunderbird are desktop email client applications that are installed on the computer.*

Q9. Ray Tomlinson is credited with:

(a) Inventing the World Wide Web
(b) Sending the first email and introducing the '@' symbol in email addresses ✓
(c) Creating the HTML language
(d) Founding Google's Gmail service

Explanation: *Ray Tomlinson sent the first email in 1971 via ARPANET and introduced the '@' symbol to separate the username from the hostname in email addresses (e.g., user@host). His format is still used unchanged today.*

Q10. What is the secure/encrypted port for IMAP (IMAPS)?

(a) 143
(b) 25
(c) 110
(d) 993 ✓

Explanation: *Port 993 is used for IMAPS (IMAP with SSL/TLS encryption). Port 143 is unencrypted IMAP. Port 25 is SMTP (server-to-server). Port 110 is POP3 (unencrypted). For secure modern email: IMAPS=993, POP3S=995, SMTPS=587.*

Q11. Writing an email in ALL CAPITAL LETTERS is considered:

(a) Polite and easy to read
(b) SHOUTING — rude and aggressive netiquette violation ✓
(c) Professional formatting
(d) Standard format for subject lines

Explanation: *Writing in ALL CAPS is the digital equivalent of shouting and is a major netiquette violation — it appears aggressive and rude. Use title case for subject lines and regular sentence case for email body.*

Q12. Outlook Express was:

(a) A premium paid version of Outlook
(b) A free basic email client bundled with Windows 98/XP — now discontinued ✓

(c) A web-based email service by Microsoft
(d) A current version of Microsoft Office Outlook

Explanation: *Outlook Express was a free, simplified email client bundled with Windows 98, ME, 2000, and XP. It was discontinued and replaced by Windows Mail. It should not be confused with Microsoft Outlook (full version in Office suite).*

Q13. Which type of email encryption keeps email encrypted end-to-end so even the email provider cannot read it?

(a) TLS (Transport Layer Security)
(b) S/MIME (certificate-based)
(c) End-to-End Encryption (E2EE) — as in ProtonMail ✓
(d) Firewall encryption

Explanation: *End-to-End Encryption (E2EE) means email is encrypted on the sender's device and can only be decrypted by the recipient's device — the email provider's servers handle only encrypted data. ProtonMail uses E2EE. TLS only encrypts the connection in transit.*

Q14. When you click 'Reply All' in email, your reply goes to:

(a) Only the original sender
(b) Everyone in the To and CC fields of the original email ✓
(c) Everyone in To, CC, and BCC fields
(d) Only the people in CC

Explanation: *Reply All sends your reply to the original sender AND all recipients in the To and CC fields. BCC recipients do NOT receive Reply All replies. Be careful — Reply All storms can flood inboxes when unnecessary.*

Q15. IMAP4 port for SECURE connection (SSL/TLS) is:

(a) 143
(b) 993 ✓
(c) 110
(d) 587

Explanation: *IMAP4 secure port is 993 (IMAPS — IMAP over SSL/TLS). Port 143 is unencrypted IMAP. Always use 993 for secure email configuration on mobile and desktop clients.*

Q16. Which email folder holds emails that have been deleted but not permanently removed?

(a) Archive
(b) Drafts
(c) Outbox
(d) Trash / Deleted Items ✓

Explanation: *Trash (Gmail) or Deleted Items (Outlook) holds deleted emails temporarily — in Gmail they are kept for 30 days before permanent deletion. Archive hides emails from inbox but keeps them. Drafts = unsent. Outbox = queued to send.*

Q17. What is the purpose of the 'Forward' option in email?

(a) Reply to the original sender only
(b) Reply to all recipients
(c) Send the received email to a new person not in the original conversation ✓
(d) Schedule the email for later delivery

Explanation: *Forward sends a copy of the received email to a new recipient who was not in the original conversation. It is used to share information with someone else. Reply goes back to the sender; Reply All goes to all original recipients.*

Q18. Which of the following is a SECURE instant messaging app with end-to-end encryption for all messages?

(a) Telegram (regular chats)

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(b) Discord
(c) Signal ✓
(d) Facebook Messenger (regular chats)

Explanation: *Signal provides end-to-end encryption for ALL messages by default — it is considered the most secure IM app. Telegram only encrypts in 'Secret Chats' mode. Discord and regular Facebook Messenger use TLS but not full E2EE.*

Q19. The @ symbol in an email address was introduced by:

(a) Tim Berners-Lee in 1989
(b) Bill Gates in 1980
(c) Ray Tomlinson in 1971 ✓
(d) Vint Cerf in 1974

Explanation: *Ray Tomlinson introduced the '@' symbol in email addresses in 1971 when he sent the first email via ARPANET. He chose '@' to separate the username from the hostname — a convention used unchanged to this day.*

Q20. Which email protocol should you use if you want to access your email from multiple devices (laptop, phone, tablet)?

(a) POP3
(b) SMTP
(c) MIME
(d) IMAP4 ✓

Explanation: *IMAP4 (Internet Message Access Protocol v4) is ideal for multiple devices because it keeps all emails on the server and syncs across all devices. POP3 downloads to one device and removes from server — making multi-device access impossible.*

Best of Luck for Your Exam!

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