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MATRIC NO: RUN/CMP/24/17877

TOPIC

- **Explain the concept of synchronous and asynchronous communication**
- **Explain DORA**
- **Explain Session and cookies**
- **What is malware?**
- **Differentiate between Virus, Worms, Trojan, Ransomware and Spyware**

COURSE CODE: CSC 828
INTERNET TECHNOLOGY

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THE CONCEPT OF SYNCHRONOUS AND ASYNCHRONOUS COMMUNICATION

SYNCHRONOUS COMMUNICATION

It occurs in real-time (both parties are present and respond immediately).

It's like a phone call or live chat (instant replies).

Example: Video calls, Zoom meetings, face-to-face conversation.

ASYNCHRONOUS COMMUNICATION

It does not require immediate response (messages are sent and responded to later).

It is great for flexibility (delayed replies).

Example: Email, WhatsApp messages, forums.

DORA (DevOps Research and Assessment)

DORA is a research group (now part of Google) that measures software delivery performance based on 4 key metrics:

1. Deployment Frequency – How often code is deployed to production.
2. Lead Time for Changes – Time taken from code commit to production release.
3. Change Failure Rate – Percentage of deployments that cause failures.
4. Mean Time to Recovery (MTTR) – How quickly you recover from failure.

DORA helps teams improve software delivery speed, stability, and reliability.

SESSION AND COOKIES

Features of Session Cookie

Storage Server-side Client-side (browser)

Lifespan Ends when browser closes (unless extended) Can be set to expire at a specific time

Size limit Larger (stored on server) Small (~4KB)

Use Tracks user activity during a visit Stores user preferences, login info

Security More secure Less secure (can be accessed via JS)

MALWARE

Malware = Malicious software

It refers to any software designed to harm, exploit, or steal data from computers, networks, or users.

DIFFERENTIATE BETWEEN VIRUS, WORMS, TROJAN, RANSOMWARE AND SPYWARE

Virus Attaches to files/programs and spreads when opened. Needs human action to activate.

Worm Self-replicates and spreads automatically through networks. Doesn't need to attach to a file.

Trojan Disguises as a legit program but secretly damages or steals data once installed.

Ransomware Locks or encrypts your files and demands a ransom to unlock them.

Spyware Secretly monitors user activity and steals information (e.g., passwords, browsing habits).

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