

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.

B.Sc.CSc.(DS) - END SEMESTER EXAMINATIONS - APRIL 2025

SEMESTER - VI

24UDSET6B02 - Information Security

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

Section B

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. How does a Denial-of-Service (DoS) attack affect a system ?
2. Explain how OTP ensures perfect secrecy and why it is theoretically unbreakable.
3. Analyze the structural differences between block ciphers and stream ciphers in terms of encryption process and key usage.
4. How does error propagation differ in block ciphers and stream ciphers, and what are its real-world implications?
5. What is a hash collision, and how can it be exploited?
6. Analyze how Kerberos uses symmetric encryption to authenticate users securely.
7. How does a salami attack work in financial systems? Provide a real-world example.
8. Evaluate the strengths and weaknesses of biometric authentication compared to password-based authentication in high-security environments.

Section C

Answer any **THREE** questions ($3 \times 10 = 30$ Marks)

9. Explain the five main security services in Information Security Confidentiality, Integrity, Authentication, Non-Repudiation, and Availability with real-world examples.
10. Discuss its role in public-key authentication systems such as SSH or SSL/TLS.
11. Analyze the limitations of traditional antivirus against polymorphic and metamorphic viruses.
12. Analyze the role of network security controls in protecting an organization's IT infrastructure.
13. Design a multi-layered firewall architecture for a large enterprise network. Justify your choices of firewall types at different layers.
