CNS Unique Questions

🧠 Unit 1: Network Security Concepts & Architecture

1. Explain Security Services and mechanisms to implement it.
2. Distinguish between passive and active security attacks.
3. Enlist security goals. Discuss their significance.
4. Explain the OSI Security Architecture and Network Security Model.
5. SHA provides better security than MD5 — Justify.
6. Explain different types of denial of service attacks.
7. What is Steganography and its applications?

🔐 Unit 2: Cryptography & Encryption Techniques

8. Explain Playfair cipher with example.
9. Encrypt "This is the final exam" with Playfair cipher, the key is 'Guidance'.
10. Describe RC5 algorithm with an example.
11. Compare and contrast DES and AES.
12. Explain Public Key Cryptography and RSA algorithm.
13. Given modulus n=91 and public key e=5, find p, q, φ(n), and d using RSA; Encrypt M=25.
14. Given modulus n=221 and public key e=7, find p, q, φ(n), and d using RSA; Encrypt M=5.
15. Describe different Block Cipher modes.
16. What are Block cipher modes? Describe any two in detail.
17. Explain transposition ciphers with illustrative examples.
18. Discuss classical encryption techniques with example.

📜 Unit 3: Authentication, Key Management & Certificates

19. Compare HMAC and CMAC.
20. What is the significance of a digital signature on a certificate? Justify.
21. Design a sample digital certificate and explain each field of it.
22. What is PKI? Explain PKI architecture in detail.
23. Explain Kerberos Protocol in detail.
24. Show how a Kerberos protocol can be used to achieve single sign-on in distributed systems.

🛰️ Unit 4: Network Access, Management & Security Protocols

25. Explain different NAC enforcement methods.
26. What is Network Access Control? Discuss the elements present in this context.
27. Explain the implementation of Network Access Control with one use case.
28. Explain Network Management Security with respect to SNMP protocol.
29. What is Network Management Security? Explain SNMP v3.
30. Explain the working of IPsec in its different modes.
31. How does IPSec help to achieve authentication and confidentiality? Justify the need of AH and ESP.

📡 Unit 5: Secure Communication & Protocols

32. Explain SSH protocol stack in brief.
33. Explain Email security process. Explain how S/MIME can be used for Digital Signature and verification operations on email messages.
34. Write a short note on Email Security.
35. Explain how VPN can be used to encrypt your personal data.
36. Explain different types of protocol offered by SSL.
37. Explain SSL Architecture.

💣 Unit 6: Network Defense, Attacks & Threat Management

38. State firewall design principles and its types with advantages.
39. Why there is a need of a firewall? Explain different types of firewalls.
40. Explain IDS and its types in detail.
41. Explain different methods of IDS. State capabilities and challenges in IDS.
42. What is an Intruder Detection System? Explain its types in detail.
43. Differentiate between virus and worm.
44. Define Malware. Explain at least five types with example.
45. Explain the purpose of keylogger and rootkit.
46. List and explain all types of Malware in detail. Differentiate between Virus and Worms.