

**Eighth Semester B.E. Degree Examination, Feb./Mar. 2022**  
**Network Security**

Max. Marks: 100

Time: 3 hrs.

**Note:** Answer any FIVE full questions, selecting atleast TWO questions from each part.

**PART – A**

- 1 a. What are security attacks, security mechanisms and security services? Briefly explain. (06 Marks)
- b. Explain Active and Passive attacks with their categories. (08 Marks)
- c. Encrypt the message "Network Security" using key 5 3 1 4 2 6 using double transposition technique. (06 Marks)
- 2 a. Encrypt and decrypt the message "FRIDAY" using Hill cipher given  $K = \begin{bmatrix} 7 & 8 \\ 19 & 3 \end{bmatrix}$  (10 Marks)
- b. With a neat diagram, explain single round of DES encryption. (10 Marks)
- 3 a. Write RSA algorithm perform encryption and decryption using RSA given  $p = 5, q = 11, e = 3, M = 9$ . (10 Marks)
- b. Explain Deffie-Hellman key exchange algorithm. Find shared key and public keys of 2 users A and B if  $q = 11, \alpha = 5, X_A = 3$  and  $X_B = 2$ . (04 Marks)
- c. Explain public key authority technique for public key distribution. (06 Marks)
- 4 a. With neat diagram, discuss the basic uses of hash function. (12 Marks)
- b. Write the Digital Signature Algorithm (DSA). Explain signing and verification functions. (08 Marks)

**PART – B**

- 5 a. Explain SSL (Secure Socket Layer) with its important concepts and parameters. (10 Marks)
- b. Describe the sequence of events that are required for a transaction is Secured Electronic Transaction (SET). (10 Marks)
- 6 a. Explain Distributed intrusion detection. (10 Marks)
- b. With neat diagram explain UNIX password scheme. (10 Marks)
- 7 a. Give the taxonomy of malicious programs. Explain. (08 Marks)
- b. List and explain the phases that virus goes through during its life time. (08 Marks)
- c. Write a note on Macro viruses. (04 Marks)
- 8 a. Give the capabilities and limitations of firewalls. (08 Marks)
- b. Explain the different types of firewalls with neat sketch. (12 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
 2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8=50, will be treated as malpractice.