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10EC832

Eighth Semester B.E. Degree Examination, Dec.2019/Jan.2020
Network Security

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO full questions from each part.

PART - A

- 1 a. Distinguish between passive and active security attacks. Explain various types of passive and active attacks in brief. (10 Marks)
b. Draw the model for network security. Explain its function along with the basic tasks in designing a security service. (10 Marks)
- 2 a. Encrypt the plain text "HELLO" using play fair Cipher technique. Given key = EXAM. (06 Marks)
b. With an illustrative example, explain one time pad. (06 Marks)
c. Encrypt and decrypt the message 'HI' using Hill Cipher. Given that, $K = \begin{pmatrix} 3 & 7 \\ 15 & 12 \end{pmatrix}$ and $K^{-1} = \begin{pmatrix} 10 & 5 \\ 7 & 9 \end{pmatrix}$. (08 Marks)
- 3 a. With neat diagram, explain single round of DES encryption algorithm. (08 Marks)
b. Explain the concept of public key cryptography with neat sketch. (06 Marks)
c. Describe the RSA algorithm with an example. (06 Marks)
- 4 a. With an illustrative example, explain Diffie-Hellman key exchange algorithm. (10 Marks)
b. What is a digital signature? What are its requirements? Explain direct digital signature and arbitrated digital signature. (10 Marks)

PART - B

- 5 a. Describe Secure Socket Layer (SSL) protocol stack with a neat sketch and define the different parameters used in session and connection states. (10 Marks)
b. Describe the sequence of events that are needed for a transaction in SET. (10 Marks)
- 6 a. Describe briefly three classes of intruder. (06 Marks)
b. What is intrusion detection? Explain the architecture of distributed intrusion detection in detail. (08 Marks)
c. Briefly describe password selection strategies. (06 Marks)
- 7 a. Give the taxonomy of malicious programs. What are the various software threats? Explain. (10 Marks)
b. What is DDOS? Describe the 3 lines of defence against DDOS attacks. (10 Marks)
- 8 a. With neat diagram, explain digital immune system. (10 Marks)
b. What is a firewall? Describe various types of firewall configurations. (10 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.