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10EC832

Eighth Semester B.E. Degree Examination, June/July 2019
Network Security

Time: 3 hrs.

Max. Marks: 100

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

PART - A

- 1 a. Define security attack, security mechanism and security service and explain different types of attacks, giving suitable examples. (10 Marks)
- b. Draw the block diagram of conventional cryptosystem model and explain it. (10 Marks)
- 2 a. Write the rule followed to encrypt the information using 'PLAY FAIR' cipher method and encrypt "FEW ACCIDENTS OCCURRED WHEN THEY WERE SUCKED IN BY DOWNWARD AIR FLOW" using play fair cipher given the key 'SECURITY'. (06 Marks)
- b. Suppose the plain text "FRIDAY" is encrypted using a 2×2 Hill cipher to yield cipher text "PQCFKU". Find the value of the key K used for encryption. (04 Marks)
- c. With neat block diagram show the details of stages in the key generation using simplified DES (S-DES).
Given the 10 bit key 1010000010 find the sub keys K_1 and K_2 , if
 $P_{10} = [3\ 5\ 2\ 7\ 4\ 10\ 1\ 9\ 8\ 6]$
 $P_8 = [6\ 3\ 7\ 4\ 8\ 5\ 10\ 9]$ (10 Marks)
- 3 a. Perform encryption and decryption using RSA if $p = 7$, $q = 11$, $e = 13$ and $m = 5$. (06 Marks)
- b. Explain Diffie - Hellman key exchange algorithm. (06 Marks)
- c. Illustrate the different ways in which hash code can be used to provide message authentication. (08 Marks)
- 4 a. List the properties of digital signature and explain digital signature algorithm (DSA). (10 Marks)
- b. Describe the various approaches of one-way authentication protocol. (10 Marks)

PART - B

- 5 a. Explain with neat diagram SSL protocol stack and SSL record protocol operation. (10 Marks)
- b. What is the purpose of using dual signature? With neat diagram explain the construction of dual signature. (10 Marks)
- 6 a. Define an intruder. Give the classification of intruders. (04 Marks)
- b. Explain the different approaches of intrusion detection. (06 Marks)
- c. Explain the UNIX pass word scheme. (10 Marks)
- 7 a. What is a virus? Explain the different phases that virus goes through during its life time, which are the types of viruses? Explain them. (10 Marks)
- b. Write short note on :
i) Antivirus approaches
ii) Digital Immune system. (10 Marks)
- 8 a. Explain the different types of firewalls with neat diagram. (10 Marks)
- b. Explain the concept of trusted systems, and with the neat diagram explain reference monitor concept. (10 Marks)

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.