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18EC821

Eighth Semester B.E. Degree Examination, June/July 2024
Network Security

Time: 3 hrs.   Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1   a.   Explain all the principles of security with suitable diagrams.   **(07 Marks)**
    b.   Explain Java Sand Box with related diagram which shows detailed steps in the execution of the java program on internet.   **(07 Marks)**
    c.   Write short notes on virus and worms.   **(06 Marks)**

OR

2   a.   Explain passive and active attacks with suitable diagrams.   **(07 Marks)**
    b.   List out two types of specific attacks and explain in detail.   **(07 Marks)**
    c.   What is cookie? Explain its creation and usage of cookies with relevant diagrams.   **(06 Marks)**

Module-2

3   a.   List the various web traffic security approaches and explain with relevant diagrams.   **(06 Marks)**
    b.   With suitable diagrams, explain the working of handshake protocol action.   **(08 Marks)**
    c.   With suitable diagram, explain SSL architecture with the concepts of connection and session.   **(06 Marks)**

OR

4   a.   What is transport layer security? Explain calculation of Message Authentication Code (MAC) and Generation of Pseudorandom function with suitable diagram.   **(10 Marks)**
    b.   Explain the working of HTTPS with related connection initiation and connection closure.   **(05 Marks)**
    c.   With suitable diagram, explain the packet formation of SSH transport layer protocol.   **(05 Marks)**

Module-3

5   a.   Explain IP Security overview with suitable diagram and list its applications.   **(07 Marks)**
    b.   Explain IPSec documents with suitable diagram and write a short note on security associations.   **(08 Marks)**
    c.   Explain how authentication header guards against the replay attack.   **(05 Marks)**

OR

6   a.   Explain the two ways in which IPSec authentication service can be used with related diagrams.   **(08 Marks)**
    b.   Explain the various fields of ESP format with suitable diagrams.   **(05 Marks)**
    c.   Explain the scope of ESP encryption and authentication in transport and tunnel mode with suitable frame format.   **(07 Marks)**

Module-4

7 a. List and explain three classes of intruders. Explain various intrusion techniques. **(10 Marks)**
   b. Define intrusion detection with suitable approaches. Explain statistical anomaly detection. **(10 Marks)**

OR

8 a. i) Define virus. Explain its life phases.
      ii) Explain virus structure with suitable example. **(10 Marks)**
   b. Write short notes on:
      (i)   Digital immune system
      (ii) Antivirus approaches **(10 Marks)**

Module-5

9 a. List various types of firewalls. Explain the packet filtering router in detail. **(10 Marks)**
   b. Explain various design goals of a fire wall. Also give details about the capabilities and limitations of firewall. **(10 Marks)**

OR

10 a. Define firewall configuration. Explain in detail the various configurations with suitable diagrams. **(10 Marks)**
   b. Explain in detail the circuit level gateway with suitable diagrams. **(10 Marks)**

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