USN | | | | | | | | | | 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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