

## B. Tech Degree VIII Semester Examination, May 2006

### CS 801 SECURITY IN COMPUTING

(2002 Admissions)

Time : 3 Hours

Maximum Marks : 100

- I. (a) Discuss about the main vulnerabilities a computer system is subjected to. (12)  
(b) Explain why the product of two relatively simple ciphers, such as a substitution and a transposition achieve a high degree of security. (8)
- OR**
- II. (a) What is a digital signature? How public key encryption can be used to create digital signatures? (8)  
(b) Explain the operation of AES and DES algorithm. (12)
- III. What are non-malicious program errors? Explain with example, any two non-malicious program errors. How can they become a threat to security? (20)
- OR**
- IV. (a) What are viruses? Which are the different methods by which a virus gets attached and invoked? (10)  
(b) What are targeted malicious code? Briefly discuss about trapdoors and salami attack. (10)
- V. (a) How can segmentation and paging be used to achieve memory and address protection? (10)  
(b) Discuss about the different methods by which passwords get attacked. (10)
- OR**
- VI. (a) What is the role of a Trusted Computing Base (TCB) in kernelized design of a trusted operating system? (10)  
(b) Explain any 5 security features of a trusted operating system. (10)
- VII. (a) What all features should be taken care of for monitoring the security of a database? (10)  
(b) Explain how the 2-phase update technique can be used to avoid assigning one seat to two people in an airline reservation system. (10)
- OR**
- VIII. (a) What are multilevel databases? How can they ensure differentiated security? (5)  
(b) Explain the different design techniques for multilevel secure databases. (15)
- IX. (a) Explain the operational concept used behind the following threats. (20)  
(i) Port Scanning (ii) Impersonation  
(iii) Spoofing (iv) Denial of Service
- OR**
- X. (a) Assume that your campus network has a web server and a mail server. What type of firewall will you design to protect your network? Justify your answer. (8)  
(b) How can authentication be achieved using Kerberos? (12)

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