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## 2003 Course Information System Security

3 pages, 38 questions, 0 questions with responses, 0 total responses

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Total No. of Questions : 12]

[Total No. of Pages : 3

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B.E. (I.T.)

### INFORMATION SYSTEM SECURITY (2003 Course) (414441)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answer three questions from Section-I and three questions from Section-II.
- 2) Answers to the two sections should be written in separate books.
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Figures to the right indicate full marks.
- 5) Your answers will be valued as a whole.
- 6) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.

#### SECTION - I

- Q1)** a) What are the two basic functions used in encryption algorithms? [6]  
 b) What is the difference between Monoalphabetic and Polyalphabetic cipher? [6]  
 c) What are the two problems with one time pad cipher? [6]

OR

- Q2)** a) Explain avalanche effect. [6]  
 b) What is the difference between block and stream cipher? [6]  
 c) Give examples of replay attacks. List approaches to deal with them. [6]

- Q3)** a) Show that enforcement rules of Clark-Wilson model can emulate the Biba model. [8]

- b) Explain : [8]

- i) Mandatory.
- ii) Discretionary.
- iii) Role based access controls.

OR

- Q4)** a) Discuss the role of trust in security policy. [5]  
 b) Discuss availability issues in security policies. [5]  
 c) Compare and contrast confidentiality Vs. integrity policies. [6]

P.T.O.

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**Q5)** a) Compare and contrast the four modes of operation for block ciphers with respect to implementation complexity and strength of encryption. [8]

b) Explain meet-in-the-middle attack with help of Diffe-Hellman-algorithm. [8]

OR

**Q6)** a) Does repeated application of DES strengthens the security? Why or why not? [8]

b) What are the time and space complexities for a dictionary attack on MD5? [8]

### SECTION - II

**Q7)** a) What are the limitations in using “rule based system” in general and firewalls in particular for peripheral security? [6]

b) Argue the merits and demerits of having specific servers (E-mail, web, etc) in DMZ [6]

“Authentication protocols that use random numbers are inherently more secure than the ones that don’t use random numbers”. Substantial or reject the statement. [6]

OR

**Q8)** a) The Alpha-Beta Corporation wants to provide a notarized email service with online notaries. The requirements for notaries are the same as human notary “Public” persons.

Identify and list the requirements for this service.

Provide a protocol that will meet your requirements.

Write the protocol in simple, clear and precise steps. [8]

b) In context of IDS systems compare and contrast [10]

i) Stateless Vs. Stateful IDS.

ii) Rule based system Vs. adaptive systems.

iii) Anomaly Vs. Misuse Detection.

**Q9)** a) What protocols comprise SSL? What is the difference between SSL session and SSL connection? [8]

b) Describe Kerberos Realm. [8]

OR

**Q10)** a) Distinguish between tunnel and transport mode. [8]

b) Define hash function, requirements of hash function and compare MD4 and MD5 algorithm. [8]

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**Q11)** Write notes on (any two) :

**[16]**

- a) Vulnerability classification.
- b) IPS (Intrusion Prevention Systems).
- c) Storing and Revoking keys.
- d) PGP.



OR

**Q12)** Write notes on (any two) :

**[16]**

- a) Cookies.
- b) Penetration testing.
- c) Steganography.
- d) Digital immune system.

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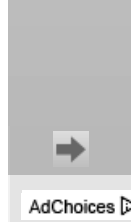
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