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**15CS743**

## Seventh Semester B.E. Degree Examination, July/August 2021
## Information and Network Security

Time: 3 hrs.

Max. Marks: 80

**Note:** *Answer any FIVE full question.*

1 a. Compare and interpret
   i) Cryptography and Cryptanalysis  ii) Substitution and Transposition Cipher
   iii) Block and Stream Cipher      iv) Symmetric and Asymmetric cipher  **(08 Marks)**

   b. Explain one time pad with its cryptanalysis

   | Letter | e | h | i | k | $\ell$ | r | s | t |
   |--------|-----|-----|-----|-----|-----|-----|-----|-----|
   | binary | 000 | 001 | 010 | 011 | 100 | 101 | 110 | 111 |

   Key – 111 101 110 101 111 100 000 101 110 000
   Message : heilhitler  **(08 Marks)**

2 a. Simplify the Kerckhoff's principle in the context of Cryptography.  **(08 Marks)**
   b. Rephrase the properties of Cryptographic hash function.  **(08 Marks)**

3 a. Explain Tiger hash in detail.  **(08 Marks)**
   b. Illustrate Birthday attack with an example.  **(08 Marks)**

4 a. Explain how Steganography and Digital watermarking techniques used to hide the information.  **(08 Marks)**
   b. Illustrate HMAC algorithm with its structure.  **(08 Marks)**

5 a. Illustrate the dynamic passward Scheme based on challenge response.  **(08 Marks)**
   b. Explain the clock based and sequence numbers freshness mechanisms.  **(08 Marks)**

6 a. Explain the stages in protocol design and its challenges.  **(08 Marks)**
   b. Illustrate Authentication and key establishment protocols.  **(08 Marks)**

7 a. Explain the scope of key management with its key lifecycle diagram.  **(08 Marks)**
   b. Illustrate the key generation processes for symmetric and public key cryptography. **(08 Marks)**

8 a. Interpret the Governing key management techniques.  **(08 Marks)**
   b. Explain in detail public key certificate management models.  **(08 Marks)**

9 a. Summarize the following applications
   i) Cryptography on the internet ii) Cryptography for mobile telecommunications.  **(08 Marks)**
   b. Illustrate the main significance of Cryptography in wireless local area networks.  **(08 Marks)**

10 a. Outline how Cryptography will provide security for payment card transactions, explain in detail.  **(08 Marks)**
   b. Illustrate the following Cryptographic applications :
   i) Video broadcasting  ii) Home users.  **(08 Marks)**

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