R15

Code No: 824AE

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA IV Semester Examinations, March/April - 2022
INFORMATION SECURITY

Time: 3 Hours   Max.Marks:75

Answer any five questions
All questions carry equal marks
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1.a) Explain the operations, requirements and components of Network security model.
  b) Differentiate between Active Attacks and Passive Attacks.   [8+7]

2.a) Use *Playfair cipher* with the key "COMPUTER" to encrypt the message "INFORMATION SECURITY".
  b) Discuss about different poly-alphabetic cipher substitution techniques.   [8+7]

3.a) Explain cipher block modes of operations with suitable diagrams.
  b) Give the structure of AES. Explain how Encryption/Decryption is done in AES.   [7+8]

4.a) Alice and Bob agreed to use RSA algorithm for the secret communication. Alice securely choose two primes, p=5 and q=11 and a secret key d=7. Find the corresponding public key. Bob uses this public key and sends a cipher text 18 to Alice. Find the plain text.
  b) Illustrate man in the middle attack on Diffie-Hellman key exchange algorithm.   [8+7]

5.a) What are the Security Requirements of message authentication?
  b) Discuss the various principles involved in private and public key cryptography.   [8+7]

6.a) Explain the authentication procedures defined by X.509 certificate.
  b) What is Kerberos? What are the main features of Kerberos Version 5?   [7+8]

7.a) How does PGP provide confidentiality and authentication service for e-mail and file storage applications? Draw the block diagram and explain its components.
  b) What are the services provided by IPSec? Where can be the IPSec located on a network?
                                                                              [8+7]

8.a) Write briefly about the signature based Intrusion Detection Systems.
  b) Discuss about the various types of firewalls.   [8+7]

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