

(3 Hours)

[Total Marks: 80]

- N.B. : (1) Question No 1 is Compulsory.
 (2) Attempt any three questions out of the remaining five.
 (3) All questions carry equal marks.
 (4) Assume suitable data, if required and state it clearly.

- 1 Attempt any FOUR [20]
 - a Explain with examples keyed and keyless transposition ciphers.
 - b Explain the different modes of block ciphers.
 - c Differentiate between SHA-1 and MD5
 - d What is Buffer overflow attack?
 - e Explain ARP spoofing.
- 2 a Explain Diffie Hellman key agreement algorithm. Also discuss the possible attacks on it. Consider the example where A and B decide to use the Diffie Hellman algorithm to share a key. They choose $p=23$ and $g=5$ as the public parameters. Their secret keys are 6 and 15 respectively. Compute the secret key that they share. [10]
 - b Explain AES algorithm. Highlight the difference between AES and DES. [10]
- 3 a Explain various types of firewalls. [10]
 - b Discuss various attacks on digital signatures and the methods by which they can be overcome. [10]
- 4 a Elaborate the sign and verification process of RSA as a digital signature scheme. [10]
 - b Write short notes on [10]
 1. Packet sniffing
 2. SQL injection
- 5 a State the rules for finding Euler's phi function. Calculate [10]
 - a. $\phi(10)$
 - b. $\phi(49)$
 - c. $\phi(343)$
 - b Explain Kerberos as an authentication service. [10]
- 6 a Enlist the various functions of the different protocols of SSL. Explain the phases of handshake protocol. [10]
 - b How does ESP header guarantee confidentiality and integrity of packet payload? What is an authentication header (AH)? How does it protect against replay attack? [10]