(2 ½ Hours) [Total Marks: 75]

N.B. 1) All questions are compulsory.
2) Figures to the right indicate marks.
3) Illustrations, in-depth answers and diagrams will be appreciated.
4) Mixing of sub-questions is not allowed.

Q.1 Attempt ANY FOUR from the following: **(20M)**

(a) Discuss the X.800 Security Services?
(b) Write a short note on CIA Triad.
(c) Explain Data Encryption Standard (DES) in detail.
(d) Perform encryption and decryption using RSA Algorithm for the following. P=7; q=11; e=17; M=8
(e) With the help of an example, explain the Play fair cipher.
(f) Write a short note on Steganography.

Q.2 Attempt ANY FOUR from the following: **(20M)**

(a) Explain Diffie-Hellman Key Exchange.
(b) Write a short note on the MD5 algorithm.
(c) What is Digital Signature? How does it work?
(d) Discuss the X.509 Certificate format.
(e) State and explain any five applications of Cryptographic Hash Functions.
(f) Write a short note on Public Key Distribution.

Q.3 Attempt ANY FOUR from the following: **(20M)**

(a) Explain the concepts and techniques of Intrusion Detection Systems.
(b) Explain Distributed Denial of Service.
(c) Write a short note on Secure Electronic Transaction.
(d) Explain the role of AH (Authentication Header) and ESP (Encapsulating Security Payload) in IPSec.
(e) Discuss different types of firewalls used in network security.
(f) Write a short note on SSL.

Q.4 Attempt ANY FIVE from the following: **(15M)**

(a) Explain the following types of attacks:
  i) Impersonation
  ii) Espionage
  iii) Eavesdropping
(b) What is Kerberos? Explain in brief.
(c) What is Virus? Describe different types of Viruses.
(d) Explain the concept of Electronic Code Book (ECB).
(e) Explain SHA in brief.
(f) Define the role of honeypots.

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