

(2½ 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 All(Each of 5Marks)**(15M)****(a) Multiple Choice Question**

- i) Rail Fence Technique is an example of
 - a) Substitution
 - b) Transposition
 - c) Product cipher
 - d) Caesar cipher
- ii) Which of the following is passive attack? a) Relay attack b) Masquerade c) Traffic analysis d) Denial of Service
- iii) IPsec services are available in _____ Layer. a) Application b) Data link c) Network d) Transport
- iv) To verify a digital signature we need the a) Sender's Private key b) Sender's Public key c) Receiver's Private key d) Receiver's Public key
- v) A polymorphic virus undergoes a) Crossover b) Mutation c) Genetic processing d) None of these.

(b) Fill in the blanks

(MD5,2,4,steganography, cryptanalysis)

- i) _____ attack rely on the nature of algorithm and general characteristics of plain text.
- ii) _____ is a message digest algorithm.
- iii) _____ is a technique for hiding a secret message within a larger one.
- iv) Each AES round consists of _____ separate functions.
- v) No. of keys used in Asymmetric key Cryptography is _____

(c) Short Answers

- i) What is mono alphabetic substitution cipher?
- ii) List out different types of components available in Fiestel cipher.
- iii) List out any two advantages of AES over DES.
- iv) What is worm?
- v) What is MAC?

Q. 2 Attempt the following (Any THREE)(Each of 5Marks) (15M)

- (a) List and explain different categories of security services.
- (b) What is substitution cipher? Explain any one substitution technique in detail.
- (c) Write a short note on DES.
- (d) What are different modes of operation to apply a block cipher? Explain any one in detail.
- (e) Discuss asymmetric key cryptosystem. List out the differences between symmetric and asymmetric cryptography.
- (f) Explain Active Attacks and its type?

Q. 3 Attempt the following (Any THREE) (Each of 5Marks) (15M)

- (a) Explain Diffie-Hellman key exchange algorithm.
- (b) Write a short note on HMAC.
- (c) What is hash function? Discuss its characteristics.
- (d) What is digital signature? List out its desired properties.
- (e) Discuss Kerberos in detail.
- (f) Write a short note on X509 standard.

Q. 4 Attempt the following (Any THREE) (Each of 5Marks) (15)

- (a) Write a short note on PGP.
- (b) What is SSL? Discuss its architecture.
- (c) Define intruder. Explain different types of intruders.
- (d) Discuss different approaches of intrusion detection.
- (e) What is firewall? Explain its limitations.
- (f) What is virus? Explain its counter measures.

Q. 5 Attempt the following (Any THREE) (Each of 5Marks) (15)

- (a) Discuss how public key cryptography compliments private key cryptography rather being a replacement of it.
- (b) Discuss Man in middle attack.
- (c) Write short note on i)Trapdoor ii)Logic bomb
- (d) Explain additive cipher with proper example.
- (e) Explain two general approaches of attacking a cipher.