Data Commn. & Net. Security
T.Y. CS. Sem-VI April-2016

QP Code : 17264

(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.

Q1. Attempt the following (any THREE): (15)

(A) Explain the following with reference to IPv4:
  a. Subnetting
  b. Supernetting
(B) Briefly explain the steps involved in an ARP process.
(C) What is Two-Node Loop Instability with respect to Distance Vector Routing? Explain any one method to overcome it.
(D) Explain any three strategies for transition from IPv4 to IPv6.
(E) Explain the fields related to fragmentation in an IPv4 datagram format.
(F) Discuss the applications of Multicasting.

Q2. Attempt the following (any THREE): (15)

(A) Explain the 3-way handshake technique for TCP connection establishment.
(B) List and explain the different open loop congestion policies.
(C) What are the services offered by TCP? Explain.
(D) Briefly explain the components of an email system.
(E) Write a short note on TELNET.
(F) Discuss the flow characteristics associated with quality of service.

Q3. Attempt the following (any THREE): (15)

(A) Explain the various forms of an active attack.
(B) State the characteristics of a good firewall. Also state any two limitations of a firewall.
(C) Write a short note on DMZ networks.
(D) What are the different counter measures to overcome virus attacks?
(E) With the help of proper examples, explain the various behaviour pattern of intruders.
(F) Write a short note on DDoS.

Q4. Attempt the following (any THREE): (15)

(A) State and explain the various services provided by a digital signature.
(B) Encode message 'THIS IS AN EXAM' using affine cipher with key (7, 2)
(C) In RSA, given p=19, q=23 and e=3, find n and d
(D) Write a note on S-MIME.
(E) Explain the criteria for a cryptographic hash function.
(F) Explain the DES function with diagram.

Q5. Attempt the following (any THREE): (15)

(A) Find the error, if any, in the following IPv4 addresses.
  a. 111.56.045.78
  b. 221.34.7.8.20
  c. 75.45.301.14
  d. 11100010.23.14.67
  e. 11100010. 001000100. 00101101. 11011101

ETURNOVER]

(B) Explain how TCP handles the following errors:
   a. Lost Segment
   b. Corrupted Segment
   c. Out of order segment
   d. Duplicate segment
   e. Lost Acknowledgement

(C) Explain briefly the following Malicious Software;
   a. Trojan Horse
   b. Logic Bomb
   c. Worm
   d. Spammer
   e. Spyware

(D) Explain the Deffie Hellman Key Exchange Algorithm.

(E) Explain how Static Address Allocation and Dynamic Address Allocation is achieved in DHCP.

(F) What is IPSec? Explain the Authentication Header format of IPSec.

X