Total No. of Questions : 8]

SEAT No. :

P808

[Total No. of Pages : 3

[5870] - 1128
T.E. (Computer)
COMPUTER NETWORK AND SECURITY
(2019 Pattern) (Semester - I) (310244)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Attempt Q1, or Q.2, Q.3 or Q.4, Q.5or Q.6, Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherver necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of Calculator is allowed.***
5) ***Assume suitable data is necessary.***

Q1) a) Explain distance vector routing algorithm. **[6]**

b) A host was given the 192. 168.2.64 /25 IP address, indicate: **[6]**

i) Net mask of the network in dotted decimal notation.

ii) The network address to which the host belongs.

iii) The network broadcast address to which the host belongs.

iv) The total number of hosts available in the network.

c) Explain IPv4 header format in detail **[6]**

OR

Q2) a) What is ARP? How it works? **[6]**

b) Suppose a router has built up the routing table as shown in the following table. The router can deliver packets directly over interfaces eth0 and eth1, or it can forward packets to other routers in the table. **[6]**

Destination	Netmask	Gateway
156.26.10.0	255.255.255.192	Eth0
156.26.10.128	255.255.255.128	Eth1
156.26.0.0	255.255.0.0	156.26.10.1
0.0.0.0	0.0.0.0	156.10.1.30

Describe what the router does with a packet addressed to each of the following destinations

i) 156.26.10.66

ii) 156.26.10.226

iii) 168.130.12.27

c) Explain Network Address Translation (NAT) process. **[6]**

P.T.O.

Q3) a) For each of the following applications, determine whether TCP or UDP is used as the transport layer protocol and justify the reason(s) for your choice. **[5]**

i) File Transfer

ii) Watching a real time streamed video

iii) Web browsing

iv) A Voice over IP (VoIP) telephone conversation.

v) YouTube video

b) Explain TCP state transition diagram? **[6]**

c) Define Socket? Explain Socket primitives at client and server side for TCP communication with diagram. **[6]**

OR

Q4) a) Explain TCP connection establishment process with suitable diagram. **[5]**

b) What causes silly window syndrome? How is avoided? Explain. **[6]**

c) Following is a dump of UDP header in Hexadecimal format **[6]**

06 32 00 0D 00 1C E2 17

i) What is source port number?

ii) What is destination port number?

iii) What is total length of the user datagram?

iv) What is the length of the data?

v) Is packet directed from a client to server or vice versa?

vi) What is the client process?

Q5) a) What is the difference between persistent & non persistent HTTP? Explain HTTP Request & Response message format. **[6]**

b) Explain working of DHCP. **[6]**

c) Differentiate between POP & IMAP protocol. **[6]**

OR

Q6) a) Explain how DNS query resolved? **[6]**

b) Explain FTP w.r.t. control and data connection? Explain any two FTP commands. **[6]**

c) When web pages containing emails are sent out, they are prefixed by MIME Header, why? Explain MIME Header. **[6]**

Q7) a) Draw and explain Operational Model of Network Security. **[5]**

b) Discuss the working of IPSec? What are the different security services offered by IPSec? **[6]**

c) Differentiate between Active attacks and Passive Attacks. **[6]**

OR

Q8) a) List and explain various elements of Information Security. **[5]**

b) Compare Symmetric Key and Asymmetric key encryption techniques. **[6]**

c) Explain Secure Socket Layer handshake Protocol. **[6]**