B4.5-R3: INTERNET TECHNOLOGIES AND TOOLS

NOTE:

> 1. Answer question 1 and any FOUR questions from 2 to 7.
> 2. Parts of the same question should be answered together and in the same sequence.

Time: 3 Hours **Total Marks: 100**

1.

a) How did CIDR ease the problem of fast depleting IPv4 addressing?

b) What are some important features of DHCP?

c) What is the role played by VPN in the concept of network security?

d) What is firewall? Should it come before router or after router in a network? Justify.

e) Describe in brief one method by which web servers can create pages dynamically on demand.

f) Compare QoS support features of IPv6 technology with those of IPv4 technology?

g) What is IP address spoofing and how could it be defeated?

(7x4)

2.

a) What is VOIP? What are the motivations for transmitting voice over IP?

b) Write a short note on Baseband Technology and Broadband Technology, with a special reference to advantages and the latest status of Broadband in India.

c) What is XML and how does XML compare to SGML and HTML?

(6+6+6)

3.

a) What is the layered architecture of the Internet? In a wireless network, describe how each layer would be different from a wired network.

b) What is SOAP and why is it important in the context of XML Web Services?

(10+8)

4.

a) Explain whether an ATM cell carries a source or destination address in its header or not.

b) What is the difference between E-mail server and POP server? Describe how email is stored and transmitted by POP and SMTP servers.

c) What is the difference between passive and active attacks with respect to security threats faced in using the web?

(6+6+6)

5.

a) The fundamental property of the DNS is caching. DNS server caches the information when a name server receives information about a mapping. What is the purpose of it and how does it work?

b) What is static routing? How it differs from dynamic routing.

c) What are collision and broadcast domains?

(6+6+6)

6.

a) What kinds of messages are generated by ICMP? Briefly describe them.

b) Which switching technique performs error checking on the first 64 bytes of the frame? What are different processing methods used by switches to make switching decisions?

c) Why is Open Shortest Path First (OSPF) protocol required? What kind of connections does it support?

(6+6+6)

7.

a) Describe in detail how public key and private key cryptography are used to provide secure access from a browser to a Web server over the Internet so that a commercial transaction can take place.

b) If an application uses TCP with IP, would it be considered connectionless or connection oriented? What are the problems with using TCP for real-time services (e.g. video conferencing)? Explain.

c) What are the various types of access violations that may lead to the possible attacks, security breaches or information corruption over an internet work?

(6+6+6)