[Total No. of Questions - 9] [Total No. of Printed Pages - 3]
(2125)

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B. Tech 5th Semester Examination

Computer Networks (OS)

IT-5003

Time : 3 Hours **Max. Marks : 100**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all selecting one from each of the Sections A, B, C & D. Section E is compulsory.

SECTION - A

1. (a) List the layers of the ISO OSI model and briefly describe the functionality of each layer. (7½)

   (b) What is UTP? What are the major advantages of UTP over STP? (7½)

2. (a) Explain Hamming Code method for error detection and correction. (7½)

   (b) A noiseless 4-KHz channel is sampled every 1 msec. What is the maximum data rate? (7½)

SECTION - B

3. (a) Explain the working of token ring network? In what way is it different from Ethernet? (7½)

   (b) What is the purpose of the timer at the sender in systems using ARQ? Explain in detail. (7½)

4. (a) Differentiate between IEEE 802.3, IEEE 802.4 and IEEE 802.5 standards. (7½)

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   (b) Define DQDB protocol. How does it offer higher reliability than token ring protocol? (7½)

SECTION - C

5. (a) Explain distance vector routing algorithm in detail. (7½)

   (b) Distinguish between TCP and UDP connections. Give two application scenarios for each. (7½)

6. (a) Describe how data link layer and transport layer differ from each other with respect to error handling, connection establishment and flow control. (7½)

   (b) Explain hierarchical routing algorithm in detail. (7½)

SECTION - D

7. (a) What is the role of presentation layer in OSI model? How is it being handled in TCP/IP model? (7½)

   (b) What do you mean by Encryption and Authentication? Discuss briefly the two techniques of maintaining network security. (7½)

8. (a) What is DNS? List various security threats for DNS. (7½)

   (b) Define World Wide Web. Explain the role of caching in web browsers. (7½)

SECTION - E

9. (a) Why do data link layer protocols position the checksum in the trailer and not in the header?

   (b) What is reliable flooding used for in link-state routing protocols?

   (c) TCP uses buffers on both the sending and the receiving side. Describe the purpose of the buffer at each side.

(d) What is the purpose of the Time to Live (TTL) field in an IP packet? How is it used?

(e) What is the difference between a passive star and an active repeater in a fiber optic network?

(f) What is the difference between Internet and an Intranet?

(g) Explain the function of repeater and switch.

(h) Discus Telnet protocol.

(i) What is meant by simplex and duplex communication system? Give representative examples of each.

(j) Write a note on firewall. (10×4=40)