

[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) Discuss 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)