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Question Paper Code : 10454

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2025.

Fifth/Sixth Semester

Computer Science and Engineering

CS 8591 – COMPUTER NETWORKS

(Common to : Computer and Communication Engineering/Information Technology)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Mention the different types of Networks.
2. List down the types of protocols.
3. Define VPN.
4. How many layers are there in TCP/IP network? Name them.
5. What is the different between IPV4 and IPV6?
6. Compare packet and circuit switching.
7. What are the services provided by Transport Layer?
8. Differentiate TCP and UDP.
9. Define Telnet.
10. Define DNS.

PART B — (5 × 13 = 65 marks)

11. (a) Illustrate the different types of Network Topology with a neat schematic block diagram.

Or

- (b) Suppose there is exactly one packet switch between a sending host and a receiving host. The transmission rate between the sending host and the switch and between the switch and the receiving host are R_1 and R_2 , respectively. What is the total end-to-end delay to send a packet of length L ?

12. (a) Illustrate the HDLC frames with its frame fields. Brief the usage of three types of frames. What are the different communication modes in HDLC?

Or

- (b) Discuss the various types of architecture in a Local Area Network. Brief the three different kinds of Ethernet networks.

13. (a) Illustrate the network support layers and the user support layers. Brief the roles of these layers with a neat schematic block diagram.

Or

- (b) Discuss the migration from IPv4 to IPv6 protocol with its advantages and disadvantages based on the network connectivity and communications among the connected devices.

14. (a) Explain the types of events involved in the connection through transport layer of computer network architecture. Explain Silly Window Syndrome that happens between sender and receiver.

Or

- (b) What is UDP? Explain UDP features, UDP header parameters, its functions and applications.

15. (a) Explain the features of FTP, SFTP. List down the key difference between FTP and SFTP.

Or

- (b) Explain the components of the SNMP. Mention the ports used in SNMP and their functional activities. List down the different versions of SNMP.

PART C — ($1 \times 15 = 15$ marks)

16. (a) Consider a packet of length 1500 bytes which begins at end system A and travels over three links to a destination end system. These three links are connected by two packet switches, the propagation speed on all the links is 2.5×10^8 m/s, the transmission rates of all three links is 5000 km, the length of the second link is 4000 km, and the length of the last link is 1000 km. For the above given problem statement, what is the end-to-end delay? Does this delay depend on packet length and transmission rate? Your answer has to be represented the schematic block diagram based on the above problem statement.

Or

- (b) (i) Illustrate TCP/IP network model with a neat schematic diagram, its functions and protocols and the services of each layer. (7)
- (ii) Compare the layers of TCP/IP with OSI model. (8)
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