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Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 50431

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023

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. How number of links needed to construct topologies is computed?
2. Write down the comparison between packet switching and circuit switching.
3. What is the need for fragmentation?
4. List out the significance of medium access control.
5. Compare unicast, multicast and Broadcast.
6. State the function of ICMP v4 protocol.
7. How does UDP address flow control mechanism.
8. What is the significance of port number in Transport layer when adopting TCP?
9. Provide the significant role played by DNS.
10. Draw the handshaking involved in FTP.

PART B — (5 × 13 = 65 marks)

11. (a) Compare and Contrast OSI model with TCP/IP model.

Or

(b) Detail the structure of various Transmission media in computer network. Also make comparison between twisted pair with coaxial cable.

12. (a) Discuss in detail about Bluetooth Technology, with its advantages and limitations.

Or

(b) Explain the architecture of IEEE 802. 11 Wireless LAN.

13. (a) Explain the working mechanism of Routing Information Protocol.

Or

(b) Discuss the mechanism involved in IPV6 addressing. Also compare IPV4 with IPV6.

14. (a) Explain the congestion control Techniques used to improve QOS of the computer network.

Or

(b) Explain the operation of Go-Back-N Protocol.

15. (a) Describe the core functionalities of Hypertext transfer Protocol in detail.

Or

(b) Write your understanding on SNMP and write the applications of SNMP.

PART C — (1 × 15 = 15 marks)

16. (a) (i) For the generator polynomial g = 110011 and the data bits (message) m = 11100011 find the CRC and the transmitted string T (since g is 6 bits, i.e. a polynomial of degree 5, L = 5 and the CRC should be 5 bits). (10)

(ii) Suppose g = 1001 and the received T = 1010101, did any transmission errors occur? (5)

Or

(b) Consider the Stop and Wait protocol such that :

(i) the receiver DLC sends a frame with request RN upon the receipt of each frame from the sender DLC (2)

(ii) the sender DLC sends frame SN upon the receipt of every frame from the receiver DLC with request RN = SN (even if frame SN has not timed out yet) (3)

(iii) Show by an example that if the sender times out, each packet can be sent twice (or more) over the network, which may cause congestion and more timeouts. (5)

(iv) Suggest a fix to the protocol to alleviate this problem. (5)