MCS-042

MCA (Revised)
Term-End Examination
June, 2022

MCS-042 : DATA COMMUNICATION AND COMPUTER NETWORKS

Time : 3 hours   *Maximum Marks : 100*

Note : *Question no.* ***1*** *is* ***compulsory****. Answer any* ***three*** *questions from the rest.*

1. (a) What is digital certificate ? Explain any two uses of digital certificate. *5*

    (b) Draw UDP header and explain its fields. *5*

    (c) What is Client/Server architecture of computer network ? How is it advantageous compared to peer-to-peer architecture of computer network ? *5*

    (d) Define ARP. Differenciate between ARP and RARP. *5*

    (e) Explain the following in context of data communication : *5*

        (i) Bandwidth

        (ii) Frequency

(f) Explain the need of congestion control. Explain any two congestion control schemes. *10*

(g) Explain any five types of topologies used in LAN. *5*

2. (a) Explain the use of Bellman-Ford algorithm for routing, with the help of its application in public switch network. *12*

(b) Explain circuit switching with the help of a diagram. Differentiate between space division and time division switchings. *8*

3. (a) Explain the concept of piggybacking with the help of a diagram. *5*

(b) What is the use of cryptography ? Briefly explain the differences between public key and private key cryptography. *5*

(c) Explain the use of STOP and WAIT Automatic Repeat Request (ARQ) method, with the help of a suitable diagram. *10*

4. (a) Explain, why 802.11 does not use CSMA/CD protocol. *5*

(b) Briefly explain Pretty Good Privacy (PGP) approach for electronic mail security. *5*

(c) Briefly explain ARPANET. *5*

(d) Briefly explain the features of transparent bridge. *5*

5. (a) What is CSMA/CD ? Explain the working of CSMA/CD with the help of a diagram. *10*

(b) Explain TCP/IP reference model in detail. Also list its advantages and drawbacks in comparison to OSI reference model. *10*

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