Bachelor of Computer Applications 3rd Year

1046

DATA COMMUNICATIONS AND NETWORKS
Paper : BCA-18

Time Allowed : Three Hours]   **[Maximum Marks : 90**

Note :– Attempt **five** questions in all, selecting **one** question each from Sections A, B, C and D. Section E is compulsory.

SECTION–A

1. (a) What is a network topology ? Discuss various types of network topologies.   9

    (b) Discuss TCP/IP reference model in detail.   9

2. (a) What do you understand by switching ? Discuss various types of switching techniques.   9

    (b) Discuss ISDN and its services in detail.   9

SECTION–B

3. (a) Discuss pure ALOHA, Slotted ALOHA, Persistent and Non-persistent CSMA protocols in detail.   14

    (b) Discuss parity check for error detection.   4

4. (a) Discuss Simplex Stop and Wait Protocol and Simplex Protocol for noisy channel in detail. 14

   (b) How is sliding window protocol is useful in flow control ? 4

SECTION–C

5. (a) Discuss shortest path routing algorithm with the help of an example. 10

   (b) Discuss the concept of tunneling in detail. 8

6. (a) What do you understand by broadcasting ? How broadcast routing takes place using reverse path forwarding technique ? 10

   (b) What is network congestion ? What are the reasons behind congestion ? How congestion control takes place in virtual networks ? 8

SECTION–D

7. (a) How privacy of users and data is taken care of in networks ? 9

   (b) Discuss the components of an e-mail system. 9

8. (a) Discuss video compression in detail. 9

   (b) Discuss symmetric cryptography with the help of an example. 9

SECTION–E

9.   (a)   What is guided transmission media ? Give example.   2

        (b)   What is a modem ?   2

        (c)   What is framing ?   2

        (d)   What is the use of packet fragmentation ?   2

        (e)   What is cryptanalysis ?   2

        (f)   What do you understand by multiplexing ?   2

        (g)   What is anonymous FTP ?   2

        (h)   What is socket address ?   2

        (i)   What is piggybacking ?   2