Exam. Code : 107205
Subject Code : 1803

Bachelor of Computer Application (BCA) 5th Semester

COMPUTER NETWORKS

Paper—I

Time Allowed—3 Hours] [Maximum Marks—75

Note :— Attempt any **FIVE** questions. All questions are of equal marks.

1. (a) Explain different types and components of a network. Discuss the uses of a computer network. 7½

   (b) What is the use of network topologies ? Explain various network topologies in detail. 7½

2. (a) What is multiplexing ? Explain various multiplexing techniques with suitable example. 7½

   (b) Explain ARP and justify why ARP query sent within a broadcast frame and ARP response sent within a frame with specific destination MAC address ? 7½

3. (a) What are the propagation time and the transmission time (in millisecond) for a 2.5 kbyte message (an e-mail) if the bandwidth of the network is 1 Gbps. Distance between sender and receiver is 12,000 km and that light travels at 2.4×10^8 m/s. 7½

   (b) Discuss how connection establishment and connection release are done in TCP. 7½

4. (a) How message encryption and decryption are performed ? Explain public and private key cryptography. 7½

   (b) Differentiate radio, laser and microwave transmission in detail. 7½

5. (a) Explain the working of CSMA protocol. Also explain the terms BRAP and MLMA. 7½

   (b) Explain IEEE 802 standard. What is the use of IEEE standard 802 ? 7½

6. (a) What is the need of error and flow control on data link layer ? Explain various error control and flow control techniques in detail. 7½

   (b) Explain various methods to convert analog signal into digital signal in network transmission. 7½

7. Explain TCP/IP reference model in detail. What is the need of TCP/IP model ? Compare OSI and TCP reference model. 15

8. Write notes on the following :—

   (a) Simple Network Management Protocol

   (b) Network security

   (c) FDDI 5+5+5=15