Krishna Kanta Handiqui State Open University

MCA 4th Sem. Examination, 2014

Data Communication and Computer Network Paper - 15

Time : 3 Hrs. Full Marks : 80

1. Answer any five from the following questions 2×5 =10
   (a) What are guided and unguided media? Give appropriate examples.
   (b) What is the need for a repeater?
   (c) Differentiate between star and ring topology.
   (d) Define congestion control.
   (e) Why is preamble used in MAC frame format?
   (f) What is the significance of framing?
   (g) Give the functions of file transfer protocol (FTP).

2. Answer any three from the following questions 4×3 =12
   (a) What is the significance of the presentation layer in OSI reference model?
   (b) What are data frames? Give the frame format for IEEE 802.3.
   (c) What are the functions of ARP?
   (d) Define bandwidth and throughput.
   (e) What do you mean by connectionless and connection-oriented services?

3. Answer any three from the following questions 6×3 =18
   (a) Write in brief the features of the following transmission media -
   (i) Coaxial cable (ii) Fiber optic cable
   (b) What is peer-to-peer network? Discuss the advantages and disadvantages of peer-to-peer network.

   (c) Discuss the role of DNS in an Internet service with the help of an example.
   (d) Discuss the role of Router and Gateway when data signals travel through the medium. Also write down the functions of bridge.
   (e) Write down the concept of VLAN. What are its characteristics?

4. Answer any four from the following questions 10×4 =40
   (a) What advantages does TCP have over UDP? What are the features which make TCP a reliable protocol? Discuss briefly the TCP three-way handshake.
   (b) What is switching? List and discuss the different switching techniques and performs a comparative study among the different switching techniques.
   (c) Why the Internet-Protocol (IP) is used in network layer? Describe the IPv4 header format with proper diagram. What is an IP address? What are its different classes and how are they classified?
   (d) With a block diagram, explain the funcions of different layer in ISO-OSI reference model.
   (e) Why Hamming code is needed in error detection and correction? Explain the reasons why errors occur due to data processing and transmission systems.
   (f) Write short notes on -
   (i) Sliding window protocol
   (ii) SMTP
   (iii) Cyclic Redundancy Check (CRC).