97679

B.C.A. 5th Semester (New)

Examination– November, 2016

Data Communication and Networking

Paper-BCA-303

Time : 3 hours **Max. Marks : 80**

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

Note : Attempt **five** questions in all, selecting **one** question from each unit. Q.No. 1 is **compulsory**. All questions carry equal marks.

1. (a) What is web based model?

(b) What is frame relay ?

(c) What is multiplexing ?

(d) What is the difference between asynchronous and synchronous transmission?

(e) What is wireless LAN ?

(f) What is Token Ring ?

(g) What is datagram?

(h) What are the network security issues?

Unit-I

2. What do you mean by ISO-OSI reference model ? Explain functions, services and protocol of each layer.

3. (a) Define computer network ? What is network topology ? Explain it with their advantages and disadvantages.

   (b) Explain :

   (i) Distributed system

   (ii) Peer-to-peer model.

Unit-II

4. (a) What is switching ? What are different types of switching mechanisms ? Explain.

   (b) Explain Bid Rate, Baud Rate, Bandwidth and Channel.

5. Explain :

   (a) Modulation techniques

   (b) Transmission Media

Unit-III

6. (a) Explain different types of error detection techniques.

(b) Explain:

(i) VLAN

(ii) FDDI.

7. Describe various network hardware components.

Unit-IV

8. What do you mean by routing ? Explain shortest path routing and distance vector routing algorithm.

9. (a) What do you mean by congestion? How do we control the congestion ? Explain.

(b) What do you mean by cryptography? Describe encryption method.

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Note : Attempt ***five*** questions in all, selecting ***one*** question from each Unit. Question No. 1 is ***compulsory.***

1. (a) What are major limitation of twisted pair wire ?

(b) Differentiate between Baseband and Broadband.

(c) Differentiate between half duplex and full duplex data communication.

(d) What is a microwave transmission ?

(e) What is attenuation' ?

(f) What is the difference between bit rate and baud rate ?

(g) What is MAC ?

(h) What is DSL ?

UNIT – I

2. (a) Describe ATM with their layers.

(b) Give the diagram of TCP protocol format and explain the purpose of each field in it.

3. Differentiate between :

(a) Star and Ring Topology

(b) Active Hub and 'Passive Hub

(c) Centralized Systems and Distributed Systems

(d) Client and Server Model

UNIT – II

4. (a) Discuss the three main switching methods. How is space division switching superior to time division switching ?

(b) Describe Manchester and Differential Manchester encoding schemes.

5. (a) What is Multiplexing ? Explain their types.

(b) Write down all the three process for Pulse Code Modulation.

UNIT – III

6. Write note on LAN technologies :

(a) Ethernet

(b) Switched Ethernet

(c) VLAN

(d) Token Ring

(e) Bluetooth

7. Define Network Hardware Components : Connectors, Transceivers, Repeaters, Network Interface Cards and PC Cards, Bridges, Switches, Routers, Gateways.

UNIT – IV

8. (a) Differentiate between Distance Vector Routing and Link State Routing.

(b) Define Congestion Control Algorithms.

9. (a) Describe Flooding and Shortest Path Routing.

(b) What do you mean by Cryptography ? Explain their categories Symmetric - Key Algorithms and Public-Key Algorithms.

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1. Explain the following : 16

(a) Frame Relay

(b) Dial up networking

(c) Late ways

(d) Inter networking

UNIT – I

2. Define Network Software. Explain network design issues and protocols. 16

3. Explain the following : 16

(a) TCP/IP reference model

(b) Web based model

UNIT – II

4. Explain the following : 16

(a) Representing data as Analog signals

(b) Concept of data

(c) Baud rate

5. Describe the following : 16

(a) Wired and Wireless Transmission media

(b) Switching and Multiplexing

UNIT – III

6. Explain the following : 16

(a) Error detection and correction

(b) Framing

7. Describe the following : 16

(a) VLAN

(b) Wireless LANs

UNIT – IV

8. Define Routing. Explain different types of Routing. 16

9. Explain the following : 16

(a) Authentication

(b) Symmetric key Algorithms.