Galgotias College of Engineering and Technology, Greater Noida

Pre University Test (PUT) : Odd Semester 2024-25

Course/Branch : MCA	Semester : III
Subject Name : COMPUTER NETWORKS	Max. Marks : 100
Subject Code : KCA303	Time : 180min

CO-1 : *Describe communication models TCP/IP, ISO-OSI model, network topologies along with communicating devices and connecting media.*

CO-2 : *Apply knowledge of error detection, correction and learn concepts of flow control along with error control.*

CO-3 : *Classify various IP addressing techniques, subnetting along with network routing protocols and algorithms.*

CO-4 : *Understand various transport layer protocols and their design considerations along with congestion control to maintain Quality of Service.*

CO-5 : *Understand applications-layer protocols and elementary standards of cryptography and network security.*

Section – A# 20 Marks(Short Answer Type Questions)

Attempt ALL the questions. Each Question is of 2 marks (10 x 2 = 20 marks)

Q. No.		COx	Question Description # Attempt ALL the questions. Each Question is of 2 marks
1	a	CO1	Differentiate between wired and wireless communication.(K2)
	b	CO1	How can you classify transmission Media? (K1)
	c	CO2	What do you understand by Switching? (K1)
	d	CO2	Draw the architecture of **Virtual LAN** with suitable examples. (K2)
	e	CO3	Define Hybrid Topologies with suitable example. (K1)
	f	CO3	How two– dimensional parity allows detection of all bit error? (K1)
	g	CO4	Explain the DNS with example.(K2)
	h	CO4	How SCTP works in data communication? (K1)
	i	CO5	Differentiate between Public and Private Key.(K2)
	j	CO5	Write the note on Cipher Text with suitable example.(K1)

Section – B# 30 Marks (Long / Medium Answer Type Questions)

Attempt ALL the questions. Each Question is of 6 marks(5 x 6 = 30 marks)

Q.2 How would you summarize the requirements of building a network? Explain. (K1)

OR

Explain the OSI architecture with neat diagram. (K2)

Q.3 Generate the CRC code for the data word of **11010)1011** and generator is x⁴ + x + **1. (K3)**

OR

State and explain the **Check Sum** error detection and correction method with example. (K2)

Q.4 What is Flow Control? Discuss Stop and Wait flow controls techniques. (K1)

OR

Adapt Sliding Window Protocol in data link layer with examples. (K6)

Q.5 Discuss the Congestion Control with suitable example. (K2)

OR

Differentiate between TCP and UDP protocols with header packet format diagram. (K4)

Q.6 How the DHCP works in a network? Explain its features and services with examples. (K2)

OR

Distinguish between FTP and TFTP protocols with suitable examples. (K4)

Section – C# 50 Marks (Medium / Long Answer Type Questions)

Attempt ALL the questions. Each Question is of 10 marks.

Q.7 Attempt any ONE question. Each question is of 10 marks.

a. Compare between gateway and router. (K2)

b. Distinguish between BOOTP and DHCP with suitable example. (K4)

Q.8 Attempt any ONE question. Each question is of 10 marks.

a. If the **7- bit** Hamming code word received by a receiver is **"1011011".** Assuming the even parity, state whether the received code word is correct or wrong. If wrong, locate the bit in error.(K5)

b. Distinguish between ARP and RARP with suitable example. (K4)

Q.9 Attempt any ONE question. Each question is of 10 marks.

a. Discuss the carrier sense protocols. How it is different from collision free protocol? (K2)

b. Distinguish between pure aloha and slotted aloha with suitable example. (K4)

Q.10 Attempt any ONE question. Each question is of 10 marks.

a. Define IP addressing with example. Compare and contrast IPv-4 and IPv-6. (K4)

b. What is subnetting? A company is granted a site address **201.70.64.0.** The company needs Six (6) subnets. Design and calculate the subnets and hosts. (K5)

Q.11 Attempt any ONE question. Each question is of 10 marks.

a. How does cryptography works? Differentiate between Symmetric and Asymmetric key encryption with suitable diagram. (K4)

b. Design the architecture of cryptosystems. Discuss Components with its services. (K6)