Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 130016

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2024
Fourth Semester
Computer Science and Technology
U19CT405 – COMPUTER NETWORKS
(Regulation 2019)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Which OSI layer is responsible for Process to Process Communication? Justify.	2	K2	CO1
2.	Assume 6 devices are arranged in a mesh topology. How many cables are needed? How many ports are needed for each device?	2	K3	CO1
3.	As a system admin which address range will you allot for Class A.	2	K2	CO2
4.	Calculate is the first and last address of this block for 200.20.11.144/27 CIDR block.	2	K4	CO2
5.	Suggest whether Static or Dynamic routing is efficient? Justify .	2	K3	CO3
6.	List out any 3 dynamic routing protocols.	2	K2	CO3
7.	The message 11001001 is to be transmitted using CRC polynomial X3 + 1 to protect it from errors. What is the message to be transmitted?	2	K4	CO4
8.	Calculate the hamming distance of 100 and 001.	2	K3	CO4
9.	Differentiate between Hub and Switch.	2	K2	CO5
10.	Which media can be suggested for reliable communication? Justify.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Draw the OSI network architecture and explain the functionalities of every layer in detail.	13	K2	CO1
		(OR)			
	b)	Discuss in detail about the various topology and suggest a topology for a University with proper justification.	13	K2	CO1
12.	a)	An organization is granted the block 172.0.0.0/16. The administrator wants to create 500 fixed length subnets. i. Find the subnet mask. ii. Find the number of addresses in each subnet. iii. Find the first and last addresses in subnet 1. iv. Find the first and last addresses in subnet 500.	13	K4	CO2
		(OR)			
	b)	Explain in detail about the Classes in IP addressing with suitable examples.	13	K2	CO2
13.	a)	Explain in detail about Distance vector Routing protocol with a neat diagram. Also explain about two and three node instability problem with neat diagram.	13	K2	CO3
		(OR)			
	b)	As an administrator a job is to configure router with OSPF protocol. Explain in detail about OSPF protocol router configuration with commands.	13	K3	CO3
14.	a)	Explain in detail about Aloha and slotted Aloha protocol with a neat diagram.	13	K2	CO4
		(OR)			
	b)	Construct a hamming code bit sequence for 10011101. the receiver receives the following code 100101101111, find error.	13	K3	CO4
15.	a)	Discuss in detail about the guided media with neat diagram.	13	K2	CO5
		(OR)			
	b)	Describe in detail about frame format of 802.11 with its specification and characteristics.	13	K2	CO5

PART – C

(1 x 15 = 15Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	An organization is assigned with a block of address with the starting address as 11.11.0.0. The organization needs the following subnets with specified hosts. CSE Department – 62 CST Department -65 IT Department – 32 ECE Department – 15 And 3 WAN. Compute the network table with, Subnet mask, usable IP, CIDR, Network address and Broadcast address of each subnets.	15	K4	CO2
		(OR)			
	b)	Explain in detail about CRC error detection algorithm. In addition of word 1010011110 and divisor is 10111, show the CRC at sender side. Now check at the receiver site if the data sent is error free.	15	K4	CO4