Register Number:……..

KUMARAGURU college of technology
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B. TECH. DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Fourth Semester

INFORMATION TECHNOLOGY

U18ITI4204: Computer Networks

COURSE OUTCOMES

CO1: Outline the data communication system and the purpose of layered architecture
CO2: Explain the data link layer protocols.
CO3: Outline the network layer protocols.
CO4: Apply the network layer concepts to solve a problem.
CO5: Illustrate the functions of transport layer protocols.
CO6: Summarize the application layer protocols.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

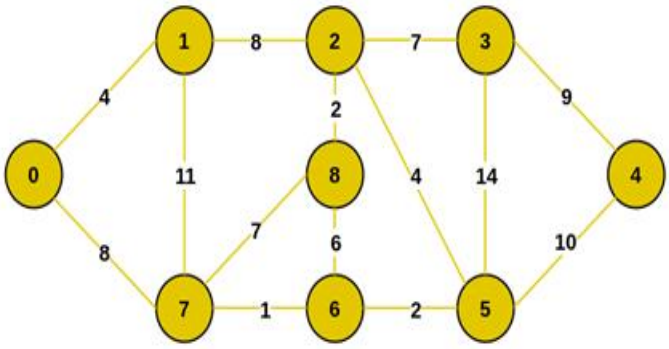
1.	List the Advantages and disadvantages of Mesh Topology.	CO1	[K_1]
2.	What is hierarchical organization of Internet?	CO1	[K_2]
3.	Differentiate Fiber optic and copper cables.	CO1	[K_2]
4.	a) Suppose a machine is attached to several physical networks. Why does it need a different IP address for each attachment? b) Suppose a computer is moved from CSE Department to Electrical Department in same engineering college. Does the physical address need to change? Does the IP address need to change? Does it make a difference that the machine is a desktop or a laptop.	CO2	[K_2]
5.	Find the minimum Hamming distance for the following d(0000,0111) , d(0000,1111) , d(0001,1100), d(0100,1010)	CO2	[K_3]
6.	List out the range of private IP addresses in IPV4 Address. Write down the use of NAT.	CO3	[K_1]
7.	Determine if these devices are on the same subnet or different subnets. You can use the address and mask of each device in order to determine to which subnet each address belongs. Device A: 172.16.17.30/20 Device B: 172.16.28.15/20	CO4	[K_3]
8.	Reduce the notation of IPV6 address by applying the corresponding rule 2001: 0db8: 0000: 1111: 0000: 0000: 0000: 0200	CO4	[K_3]
9.	Mention the fields of TCP header format.	CO5	[K_1]
10.	Difference between SMTP and POP3.	CO6	[K_2]

Answer any FIVE Questions:-
PART B (5 x 4 = 20 Marks)
(Answer not more than 80 words)

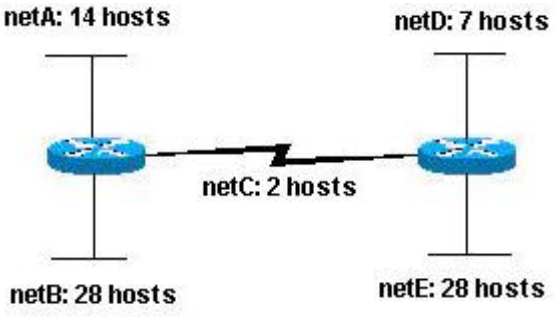
11.	Explain various layers of TCP/IP model.		CO1	[K_2]
12.	Discuss the concepts of IEEE 802.5 in detail.		CO2	[K_2]
13.	Describe about the fields of UDP header format.		CO5	[K_2]
14.	Explain in detail about open loop congestion control mechanism.		CO5	[K_2]
15.	Discuss briefly about HTTP protocol with its working.		CO6	[K_2]
16.	Discuss briefly about FTP protocol with its working.		CO6	[K_2]

Answer any FIVE Questions:-
PART C (5 x 12 = 60 Marks)
(Answer not more than 300 words)

17.	a)	Summarize the layers of OSI model, their functionality, addressing scheme, unit of transfer and protocols used with a neat sketch.	8	CO1	[K_2]
	b)	Discuss about Fiber optic cable in detail.	4	CO1	[K_2]
18.	a)	The message 11001001 is to be transmitted using CRC error detection algorithm. Assuming the CRC polynomial to be x3 + 1, determine the message that should be transmitted. If the second left most bit is corrupted, show that how it is detected by the receiver.	6	CO2	[K_3]
	b)	Apply Minimum spanning tree Algorithm for the following graph to create a loop free network.	6	CO2	[K_3]

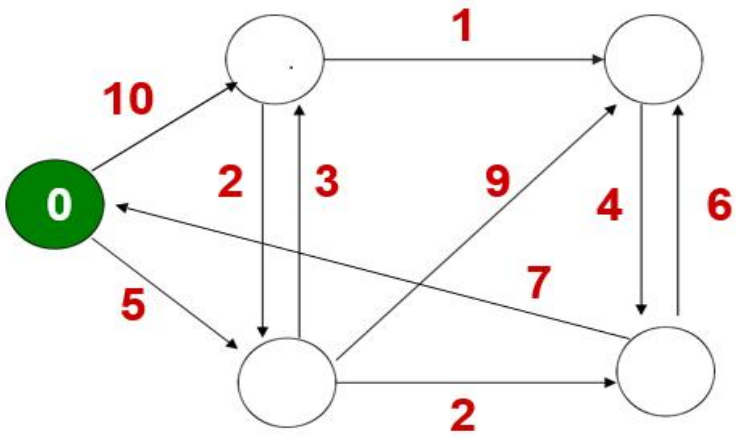


19.	a)	Given the Class C network of 204.15.5.0/24, subnet the network in order to create the network in Figure with VLSM.	8	CO4	[K_3]

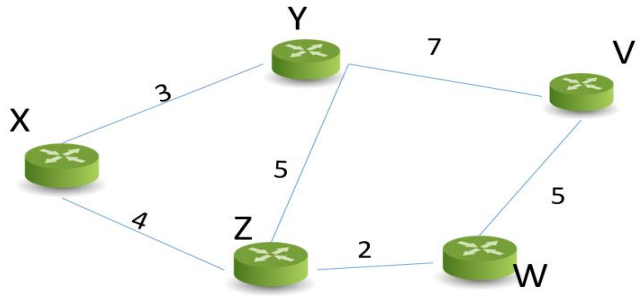


b) Discuss in detail about Circuit Switching. 4 CO3 [K2]

20. a) Apply link state routing Algorithm and fill the empty node with the shortest path values in step by step iteration to obtain the optimal path for the following example 6 CO4 [K3]



b) Apply Distance vector Routing algorithm to the following example and find out the optimal path. 6 CO4 [K3]



21. a) Explain in detail about open loop congestion control mechanism. 6 CO5 [K2]

b) Differentiate TCP and UDP. 6 CO5 [K2]

22. a) Discuss briefly about SMTP protocol with its working. 6 CO6 [K2]

b) Discuss briefly about SNMP Protocol with its working. 6 CO6 [K2]

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