T.E. SEM V / COMP/ C SCHEME / NOV 2023 / 29.11.2023

[Time: 3 Hours] **[Marks:80]**

N.B

(1) Question no. 1 is compulsory.
(2) Attempt any 3 from the remaining questions.
(3) Assume suitable data if necessary.
(4) Figures to right indicate full marks.

			Marks
Q.1		**Attempt any four of the following**	
	a)	What is subnetting? Compare subnetting and supernetting	[5]
	b)	What are three reasons for using layered protocols? What is two possible disadvantages of using layered protocols?	[5]
	c)	Explain the count to infinity problem in detail.	[5]
	d)	List two ways in which the OSI reference model and the TCP/IP reference model are the same. Now list two ways in which they differ.	[5]
	e)	4-bit data bits with binary value 1010 is to be encoded using even parity Hamming code. What is the binary value after encoding?	[5]
Q.2		**Attempt the following**	
	a)	Define guided transmission media? Illustrate with diagram the details for coaxial cable? State any 5 comparative characteristics of coaxial cable with fiber optics and twisted pair cables.	[10]
	b)	Explain how collision handled in CSMA/CD? A 5 km long broadcast LAN uses CSMA has 10^7 bps bandwidth and uses CSMA/CD. The signal travels along the wire at 5×10^8 m/s. What is the minimum packet size that can be used on this network?	[10]
Q.3		**Attempt the following**	
	a)	An organization has granted a block of addresses starting with 105.8.71.0/24, organization wanted to distribute this block to 11 subnets as follows 1. First Group has 3 medium size businesses, each need 16 addresses 2. The second Group has 4 medium size businesses, each need 32 addresses. 3. The third Group has 4 households, each need 4 addresses. Design the sub blocks and give slash notation for each subblock. Find how many addresses have been left after this allocation.	[10]
	b)	Explain classful IP addressing scheme in detail? List the advantages and disadvantages of classless IP addressing scheme.	[10]

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Q.4 **Attempt the following**

a) Explain the open loop congestion control and closed loop congestion control policies in detail [10]

b) Explain the TCP connection establishment and Connection release. [10]

Q.5 **Attempt the following**

a) Explain the concept of sliding protocol? Explain the selective repeat protocol with example? Compare the performance of Selective repeat & Go-back-N protocol. [10]

b) Explain the link state routing algorithm with example? [10]

Q.6 Write a short note on following

a) ARP & RARP [10]

b) DNS [10]

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