

**(Duration: 3 Hrs)**

**[Total Marks: 80]**

- N.B. 1) Question no. 1 is compulsory  
 2) Attempt any THREE questions from remaining FIVE questions.  
 3) Assume suitable data wherever necessary.  
 4) Figures to the right indicate Full marks.

<b>Q.No.</b>		<b>Marks</b>
Q.1	Attempt any FOUR questions out of the following questions.	
	a) In Go-Back-N ARQ, the size of the send window must be less than $2^m$ . Justify.	[5 Marks]
	b) Coaxial cable is much less susceptible to interference & cross talk than twisted pair. Why?	[5 Marks]
	c) Define the type of the following destination addresses; i) 4A:30:10:21:10:1A ii) FF:FF:FF:FF:FF:FF iii) 47:20:1B:2F:08:EE	[5 Marks]
	d) What is the difference between congestion control & flow control?	[5 Marks]
	e) What are the propagation time and transmission time for 2.5kbyte message (an e-mail) if the bandwidth of the network is 1 Gbps? Assume that the distance between the sender and the receiver is 12,000 km and that light travels at $2.4 \times 10^8$ m/s. Comment on the result.	[5 Marks]
Q.2	a) What is DSL technology? Explain various DSL technologies & compare them.	[10 Marks]
	b) Draw the OSI layer architecture. Explain the function of each layer and show the path of actual & virtual communication between the layers.	[10 Marks]
Q.3	a) Explain CSMA/CD & its use. What part of 802 Project uses CSMA/CD?	[10 Marks]
	b) Identify class of following IP addresses: i) 200.58.20.165 ii) 128.167.23.20 Also perform CIDR Aggregation of following: i) 200.96.87.0 /22 ii) 128.56.24.0 /22	[10 Marks]
Q.4	a) Explain Following protocols with an example: a) OSPF b) BGP	[10 Marks]
	b) Compare the following: i) TCP & UDP ii) SMTP & HTTP	[10 Marks]
Q.5	a) With reference to HDLC protocol, explain the following; i) HDLC frame format ii) Data transfer modes iii) Different HDLC frames iv) Importance of P/F bit v) Balanced & Unbalanced configurations	[10 Marks]
	b) Explain the following network connecting devices- i) Switch ii) Router iii) Gateway iv) Bridge v) Hub	[10 Marks]
Q.6	Write short note on- [Any Four] i) Data flow and Data communication components ii) Design Issues for the layers iii) RIP iv) DNS v) FDDI	[20 Marks]

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