Name :	
Roll No. :	A Dame of Executing and Excited
Invigilator's Signature :	

CS/BCA(Separate Supple)/SEM-5/BCA-501/2011 2011

DATA COMMUNICATION AND COMPUTER NETWORKING

Time Allotted : 3 Hours

Full Marks: 70

The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :

 $10 \times 1 = 10$

- i) Protocols are
 - a) Agreement on how communication components are to communicate
 - b) Logical communication channels for transferring data
 - c) Physical communication channels for transferring data
 - d) None of these.
- ii) The is a product of the LLC sub layer.

a)	802.3 frame	b)	802.5 frame
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c) PDU d) Preamble.

SS-07

[Turn over

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iii)	Mail services and directory services are available to network users through the layer.					
	a)	data link layer	b)	session layer		
	c)	transport layer	d)	application layer.		
iv)	The take	e method of communication in which transmission kes place in both directions, but only one direction at				
	a tir	ne is called				
	a)	simplex	b)	full duplex		
	c)	four wire circuit	d)	half duplex.		
V)	In P	CM, an analog to		conversion occurs.		
	a)	analog	b)	digital		
	c)	QAM	d)	differential.		
vi)	Enc	ryption/Decryption pro	vides	a network with		
	a)	privacy	b)	authentication		
	c)	integrity	d)	non-repudiation.		
vii)	What is the full form of VPN ?					
	a)	Visual Public Network				
	b)	Virtual Private Networl	X			
	c)	Virtual Public Network				
	d)	None of these.				
viii)	i) How many layers are there in the TCP/IP protocol					
	a)	7	b)	5		
	c)	4	d)	6.		
ix)	DQI	OB is an acronym for				
	a)	distributed queue data	bus			
	b) differential queue data bus					
	c) data queue dual bus					
	d)	distributed queue dual	bus			

SS-07

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X)	Ano	ther term o	of CSMA/CD	and the IEEI	E 802.3	
	star	idard is		To August (y'Earraid	in Real Excelored	
	a)	Ethernet	b)	Token Ring		
	c)	FDDI	d)	Token Bus.		
xi)	The	X.25 protoco	ol operates in	the of	the OSI	
	mod	lel.				
	a)	physical laye	er b)	data link layer		
	c)	network laye	er d)	all of these.		
xii)	The	maximum le	ngth of the da	ta in a token rir	ng frame	
	is					
	a)	1500	b)	4500		
	c)	3200	d)	6400.		
GROUP – B						
(Short Answer Type Questions)						
Answer any <i>three</i> of the following. $3 \times 5 = 15$						
Differenciate bit rate and baud rate. An analog signal carries						

Differenciate bit rate and baud rate. An analog signal carries four bits in each signal element. If 1000 signal elements are sent per second, find the baud rate and bit rate. 3 + 2

3. a) Distinguish between (any 2) : 2×2

- i) Baseband and Broadband transmission
- ii) Guided and unguided media
- iii) Synchronous and asynchronous transmission.
- b) Define modulation.
- 4. What are the functions of DTE and DCE ? Give an example of each. What does MODEM stand for ? What is null modem ?
 5. What is the use of PPP and POP ?
- 6. What are the advantages of digital transmission over analog transmission? 5

SS-07

[Turn over

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(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. Which is more efficient among the two : circuit switching or virtual circuit switching ? Why ? Compare Datagram approach with Virtual circuit approach in packet switching.

6 + 4 + 5

- 8. a) Draw a digital encoding format for NRZI, Manchester code, Differential Manchester coding for the digital signal 01001100011 and also write down the procedure in brief.
 - b) Compare TCP/IP with OSI layer architecture. What are the major differences between these two protocols ?

9 + (2 + 4)

- 9. a) What are the X.25 layer ? How does each relate to the OSI model ?
 - b) How does the frame layer address field differ from the HDLC address field ?
 - c) Explain the token ring network (IEEE 802.5) & FDDI.

d) What do you mean by data security ? 4 + 3 + 5 + 3

- 10. What are the three main functions of data link layers ? Why is flow control needed ? What is the mechanism of ENQ/ACK and poll/select ? Why are addresses needed in poll/select but not in ENQ/ACK ? 3 + 4 + 4 + 4
- 11. Discuss the concept of redundancy in error detection. What is the formula to compute the number of redundancy bits required to correct a bit error in a given a number of data bits. What is the purpose of the Hamming code ?

2 + 5 + 5 + 3

SS-07