nan	ıе	• • • • • •	• • • • • • • • • • • • • • • • • • • •		•••••					
Roll	<i>No.</i> :									
Invi	gilato	r's Si	ignature :	• • • • • • • • • • • • • • • • • • • •						
			CS/B.TECH/	CSE/NEW	/SEM-6/CS-602/2013					
			20	013						
			COMPUTER	NETWO	ORKS					
Time	e Allo	tted :	3 Hours		Full Marks: 70					
		Th	e figures in the mar	rgin indicat	te full marks.					
Са	ndide	ates (are required to give	their ansu	vers in their own words					
			as far d	as practica	ble.					
			GRO	UP – A						
			(Multiple Choice	e Type Qu	estions)					
1.	Choose the correct alterna ives for the following : $10 \times 1 = 10$									
	i)	If t	he dataword is 1	11111, th	e divisor is 1010, the					
		remainder is 10, the CRC codeword is								
		a)	1111111010	b)	111111110					
		c)	1010110	d)	1101010.					
	ii)		<u>-</u> :		is received, only the					
		_	cified damaged or l							
		•	Go-Back-N	,	Selective Repeat					
		•	Stop-and-wait	•	all of these.					
	iii)		is a collis		•					
		a)	Token Passing	b)	CSMA					
		c)	ALOHA	d)	CSMA/CD.					
	iv)	Repeaters function in the layer.								
		a)	Physical	b)	Data link					
		c)	Network	d)	Transport.					
620	2				[Turn over					

CS/B.TECH/CSE/NEW/SEM-6/CS-602/2013

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3.

6202

HDI	LC 1	protocol	ls i	nsert a	ı 0	bit	afte	r				
consecutive 1 bits in the message data.												
a)	5				b)	7						
c)	4				d)	8.						
Whi	ch	chann	.el	access	m	ethod	d i	is	used	in		
IEE	E 80	2·5 netv	vork	5								
a)	CSI	MA/CD			b)	Toke	en bu	ıs				
,		_			,							
Whi	ch c	lass of	i IP	addres	s is	rese	rved	for	multio	cast		
			5									
,					,							
•					,							
									S			
,					,							
,			_		,							
	How much of channel output of slotted ALOHA will be											
,					,			. 1				
,				1 1.	,							
•		nsport			b)	Netv	vork					
•		-			,				e.			
,	J		GF	ROUP - :	,							
	(8	hort A	nswe	er Type	Que	stion	ıs)					
Answer any <i>three</i> of the following $3 \times 5 = 1$												
at is	Bit 1	Rate?	Wha	t is Ba	ud F	Rate ?	An	ana	alog sig	gnal		
ies 4	bits	in eac	ch si	ignal ur	nit. I	f 100	0 si	gnal	units	are		
per	seco	nd, find	the	Baud ra	ate a	nd Bi	t rat	e.				
What is the purpose of subnetting? Find the netid and												
the hostid of the following IP addresses :												
i)	19.	34.21.5										
ii)	220	.34.8.9										
	consa) c) White Eal company conservation con	consecut a) 5 c) 4 Which IEEE 80: a) CSI c) Tok Which of commun a) Cla c) Cla For a 4-1 a) 1 to c) 0 to How mu in compa a) San c) Thr Process layer. a) Tra c) Phy (So An at is Bit I ies 4 bits at per secon What is the hosti i) 19.5	consecutive 1 bits a) 5 c) 4 Which chann IEEE 802·5 nets a) CSMA/CD c) Token ring Which class of communication a) Class A c) Class C For a 4-bit sliding a) 1 to 16 c) 0 to 15 How much of coin comparison to a) Same c) Three time Process to Proclayer. a) Transport c) Physical (Short A Answer and is Bit Rate? The second, find what is the purt the hostid of the ii 19.34.21.5	consecutive 1 bits in a) 5 c) 4 Which channel IEEE 802·5 network a) CSMA/CD c) Token ring Which class of IP communication? a) Class A c) Class C For a 4-bit sliding w a) 1 to 16 c) 0 to 15 How much of channin comparison to pu a) Same c) Three times Process to Process of layer. a) Transport c) Physical GR (Short Answer Answer any the site of the bits in each site per second, find the What is the purpose the hostid of the following in 19.34.21.5	consecutive 1 bits in the meta) 5 c) 4 Which channel access IEEE 802·5 network? a) CSMA/CD c) Token ring Which class of IP addrest communication? a) Class A c) Class C For a 4-bit sliding window, sa) 1 to 16 c) 0 to 15 How much of channel outgin comparison to pure ALOFa) Same c) Three times Process to Process delivery layer. a) Transport c) Physical GROUP - (Short Answer Type Answer any three of the is Bit Rate? What is Basies 4 bits in each signal under per second, find the Baud rate what is the purpose of subthe hostid of the following If it 19.34.21.5	consecutive 1 bits in the message a) 5 b) c) 4 d) Which channel access m IEEE 802·5 network? a) CSMA/CD b) c) Token ring d) Which class of IP address is communication? a) Class A b) c) Class C d) For a 4-bit sliding window, sequence a) 1 to 16 b) c) 0 to 15 d) How much of channel output of in comparison to pure ALOHA? a) Same b) c) Three times d) Process to Process delivery is the layer. a) Transport b) c) Physical d) GROUP - B (Short Answer Type Queen Answer any three of the foat is Bit Rate? What is Baud Foat is Bit Ra	consecutive 1 bits in the message dat a) 5	consecutive 1 bits in the message data. a) 5	consecutive 1 bits in the message data. a) 5	a) 5 b) 7 c) 4 d) 8. Which channel access method is used IEEE 802·5 network? a) CSMA/CD b) Token bus c) Token ring d) All of these. Which class of IP address is reserved for multicommunication? a) Class A b) Class B c) Class C d) Class D. For a 4-bit sliding window, sequence umber range is a) 1 to 16 b) 0 to 7 c) 0 to 15 d) 8 to 15. How much of channel output of slotted ALOHA will in comparison to pure ALOHA? a) Same b) Double c) Three times d) None of these. Process to Process delivery is the function of		

2

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- b) A network is with subnet mask of 255.255.255.254.

 Determine maximum number of Hosts in the networks.

 What is the broadcast address of that network?
- 4. a) Sketch the waveform for the bit stream 10110010 in differential Manchester encoding scheme.
 - b) Write the difference between bit stuffing and character stuffing. 2 + 3
- 5. What is intranet? Why is coaxial cable superior to twisted pair cable? Differentiate between IP address and MAC address. 1 + 2 + 2
- 6. a) Suppose a sender is using sliding window protocol of window size 15. What will be the window status for the following occurrence? Sender has sent packets 0 to 11 and has received NAK 6.
 - b) "In Selective-Repeat ARQ, sender window size > 2^{m-1} ." Is it correct? Justify. 2 + 3

GROUP - C (Long Answer Type Questions)

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

- 7. a) Given a 10 bit sequence 1010011110 and a divisor 1011. Find the CRC. Check your answer.
 - b) Write down the similarities and differences between OSI and TCP/IP model.
 - c) What is piggybacking? 7 + 5 + 3

6202 3 Turn over

CS/B.TECH/CSE/NEW/SEM-6/CS-602/2013

- 8. a) Discuss and differentiate between persistent CSMA and non-persistent CSMA.
 - b) Prove that $2^r \ge m + r + 1$, where m is the no. of data bits and r is the no. of redundancy bits required to correct the error.
 - c) How does a single bit error differ from a burst error?

5 + 5 + 5

- 9. a) State the advantage of IPV6 over IPV4.
 - b) Explain link state routing.
 - c) Differentiate between ARP and RARP. 5 + 5 + 5
- 10. a) What is a multiplexer? Discuss one analog multiplexing technique.
 - b) Describe the following encoding techniques with suitable diagrams :
 - i) QPSK
 - ii) QAM
 - iii) FSK
 - c) Discuss the advantages of fibre optic cable.
- 11. a) Find the expressions for average delay and throughput for both pure ALOHA and slotted ALOHA. Compare their performances as well.
 - b) What do you understand by data privacy? How can the authentication, integrity and non-repudiation be implemented by digital signature?
 - c) Differentiate between circuit switching and packet switching.

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6202 4