

ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE - 2009 DATA COMMUNICATION AND NETWORKING SEMESTER - 6

Time: 3 Hours]			Full Marks: 70
Time. 5 flours	A		(L'all mains : 10

GROUP - A

(Multiple Choice Type Questions)

1.	Cho	ose th	ne correct alternatives for t	the following	$g: 10 \times 1 = 10$
	t)	The	two parameters used for	measuring i	the performance of a network are
		a)	throughput and delay	b)	power and delay
		c)	power and throughput	d)	throughput and buffer size.
	ii)	All t	the packets in a message f	ollow the sa	ame path in
		a)	Datagram packet switch	ing	
		b)	Virtual circuit packet sw	ritching	
	•	c)	Message switching		
		d)	none of these.		
	iii)	Flov	w control in OSI reference	model is pe	erformed in
		a)	Data link layer	b)	Network layer
		c)	Session layer	d)	Application layer.
	iv)	Whi	ich of the following allow	vs devices	on one network to communicate with
		devi	ices on another network?		
		a)	Multiplexer	b)	Gateway
		c)	Switch	d)	Modem.

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TECH	I (IT)/SEM-6/IT-603/09	4		
v)	Host-to-host connectiv	vity is provided by		
	a) Network layer	b)	Session layer	
	c) Data link layer	d)	Transport layer.	
vi)	Which of the following	is an application l	ayer service ?	
	a) Remote login			
	b) File transfer and	l access		
	c) Mail service			
•	d) all of these.			
vii)	For stop-and-wait ARG	Q. for successfully	sending <i>n</i> number of d	ata packe
vii)	For stop-and-wait AR(sending <i>n</i> number of d	lata packe
vii)			sending n number of degree $2n$	lata packe
vii)	number of acknowledg	gement required is		lata packe
vii)	number of acknowledge a) n c) $n-1$	gement required is b) d)	2 n	
	number of acknowledge a) n c) $n-1$	gement required is b) d)	2n n + 1.	
	number of acknowledg a) n c) n-1 A subnet mask in class	gement required is b) d)	2n n + 1.	
	number of acknowledge a) n c) n-1 A subnet mask in class define?	gement required is b) d) ss A network has i	2n n + 1. fourteen 1's. How many	
viii)	number of acknowledg a) n c) n-1 A subnet mask in class define? a) 32 c) 64	gement required is b) d) ss A network has f b) d)	2n $n + 1$. fourteen 1's. How many	subnets d
viii)	number of acknowledg a) n c) n-1 A subnet mask in class define? a) 32 c) 64	gement required is b) d) ss A network has f b) d)	2n n + 1. fourteen 1's. How many 8 128.	subnets d
	number of acknowledge a) n c) n-1 A subnet mask in class define? a) 32 c) 64 In HDLC inserts a 0 b	gement required is b) d) ss A network has f b) d)	2n n + 1. fourteen 1's. How many 8 128.	subnets d

b) ·

d)

37%

none of these.

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a)

c)

18%

10%



 $3 \times 5 = 15$

GROUP - B

(Short Answer Type Questions)

Answer any three of the following questions.

2.	What do you mean	n by the	term	'subnet	masking'	? Explain	with an	example	how that
٠	can be achieved.		* * * * * *						1 + 4

3. Write short notes on any two topics:

1 + 4 $2 \times 2\frac{1}{2}$

- a) User authentication
- b) Firewall
- c) Sonet
- d) Blue-tooth.
- 4. What do you mean by Network topology? Explain in brief.

5

5. Explain RSA algorithm with an example.

5

6. Explain 'Selective repeat ARQ protocol' with the help of diagram.

5

GROUP - C

(Long Answer Type Questions)

Answer any three of the following questions.

 $3\times15=45$

- 7. a) What is working operation of stop and wait ARQ for Lost Acknowledgement?
 - b) What is IP datagram? Write all the fields of IP datagram.
 - c) Write four advantages of IPV6 over IPV4.
 - d) Write down the main function of network layer.

3 + 5 + 4 + 3

- 8. a) What is composite signal?
 - b) What is transmission impairment? How many types of transmission impairments are there? Discuss them.
 - c) We measure decibel in logarithmic forms. What is the actual reason behind this?

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- d) Suppose transmission channels become virtually error-free. Is the data link layer still needed? Explain.
- e) Suppose a computer sends a packet at the network layer to another computer somewhere in the internet. The logical destination address of the packet is corrupted. What happens to the packet? How can the source computer be informed of the situation?

 2 + 3 + 3 + 3 + 4
- 9. a) Compare and contrast a random access protocol with a controlled access protocol.
 - b) The address 43:7B:6C:DE:10:00 has been shown as the source address in an Ethernet frame. The receiver has discarded the frame. Why?
 - c) Compare and contrast CSMA/CA with CSMA/CD.
 - d) What is transparent bridge? How does a repeater extend the length of a LAN?

4 + 2 + 6 + 3

- 10. a) What is the difference between classful addressing and classless addressing in IPV4?
 - b) An ISP has a block of 1024 addresses. It needs to divide the addresses among 1024 customers. Does it need subnetting? Explain your answer.
 - c) Calculate the HLEN (in IPV4) value if the total length is 1200 bytes, 1176 of which is data from the upper layer.
 - d) Write the advantages of ICMP and IGMP over the IPV4.

4 + 3 + 3 + 5

11. Write short notes on any three of the following:

 3×5

- a) FTP
- b) Cryptography
- c) Routing
- d) Leaky bucket algorithm
- e) HTTP.

END