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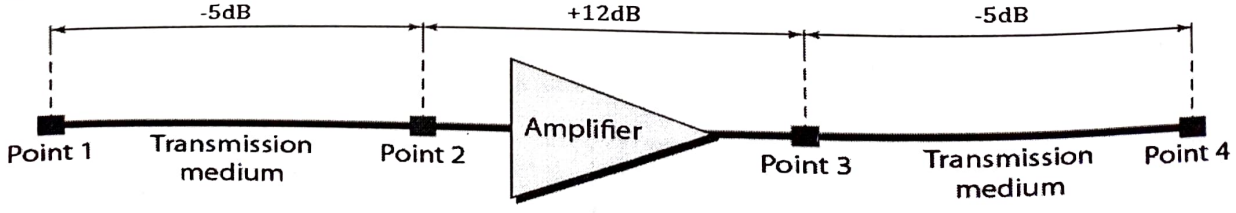
16CS/IS54

Fifth Semester B.E. Makeup Examination, January 2020
COMPUTER NETWORKS

Time: 3 Hours | Max. Marks: 100

Instructions: 1. *Draw the figures/ diagrams compulsorily wherever necessary.*
2. *Attempt only ONE question from each UNIT*

			L	CO	PO	M
		UNIT - I				
1	a.	Explain the following terms. i. Data Flow. ii. Half and full duplex connections.	(2)	(1)	(1)	(10)
	b.	Identify and explain the different layers of the TCP/IP model and correlate the layers of TCP/IP to the layers of the OSI model.	(2)	(1)	(1)	(10)
		OR				
2	a.	Compare and contrast between the following terms: i. LAN and WAN. ii. Mesh and Bus topology. iii. Physical address and Logical address. iv. Specific address and Port address.	(2)	(1)	(1)	(10)
	b.	List the different layers of the OSI reference model and explain the following layers in details i. Network Support Layers. ii. Transport Layer. iii. User Support Layers.	(1)	(1)	(1)	(10)
		UNIT – II	L	CO	PO	M
3	a.	Discuss the following terms with respect to performance on the network efficiency: i. Bandwidth ii. Throughput iii. Latency iv. Bandwidth Delay Product for LAN	(2)	(2)	(1)	(08)
	b.	What are the two approaches to packet-switching? Explain the three phases of the Virtual-Circuit network in detail with an example.	(1)	(2)	(1)	(12)
		OR				
4	a.	What are the different causes of transmission impairments? In figure below, a signal travels from point 1 to point 4. Calculate the resultant decibel value for the signal and specify whether the signal is attenuated or amplified.	(1)	(2)	(1)	(08)



Note: L (Level) CO (Course Outc...

b. Draw the graph for the following line coding schemes using the data stream of 0
   i. NRZ-I.
   ii. Manchester.
   iii. Differential Manchester.

(2) (2) (2) (06)

c. Write a short note on the following:
   i. Coaxial Cable
   ii. Fiber Optic Cable
   iii. Propagation Methods

(3) (2) (1) (06)
L CO PO M

UNIT - III

5 a. Solve using CRC method, if the data word is 1100 and generator polynomial is 1011 if
   a)Data word is unchanged at the receiver
   b)Data word is changed to 1110 during transmission

(3) (3) (2) (10)

b. Explain Stop and Wait ARQ and show the flow diagrams for Lost frame and Lost Ack.

(2) (3) (1) (10)

OR

6 a. Discuss the steps involved in generating a Checksum. Solve using checksum method if the data sent is 8,9,10,7,12 and verify at the receiver.

(2,3) (3) (2) (10)

b. Explain Go Back N ARQ using the flow diagram for a lost frame.

(2) (3) (1) (10)

UNIT - IV

7 a. Change the following IP addresses from binary notation to dotted-decimal notation and also identify the class to which they belong to.
   i. 01111111 11110000 01100111 11111001
   ii. 10101111 11000111 11111000 00011101
   iii. 11011111 10110000 00011111 01011101
   iv. 11100000 11110111 11000111 01111101

(2) (4) (2) (05)

b. Find the:
   i. First address
   ii. Last address
   iii. Number of addresses

For the addresses 211.17.180.0/24 (assume the MASK as 11111111 11111111 11111111 00000000)

(2) (4) (2) (05)

c. Explain the IPv4 datagram format.

(2) (4) (1) (10)

OR

8 a. Find theclass, netid and the hostid of the following IP addresses.
   i. 111.56.45.78
   ii. 191.255.25.10
   iii. 207.3.54.12
   iv. 178.120.40.90

b. Explain the IPV6 header format with its extension headers.

(2) (4) (2) (04

c. Compare and contrast the IPV4 and the IPV6 headers.

(2) (4) (1) (10

(2) (4) (1) (06

UNIT -V

			L	CO	PO	M
9	a.	Explain the UDP datagram format. And describe the port numbers used with UDP for the following protocols. i. Echo. ii. Users. iii. Nameserver. iv. RPC. v. SNMP.	(2)	(5)	(1)	(10)
	b.	What is Domain Name Space? Discuss the following terms with examples w.r.t. DNS in the Internet. i. Generic domains. ii. Country domains. iii. Inverse domains.	(1)	(5)	(1)	(10)

OR

10	a.	Explain the TCP segment format in detail.	(2)	(5)	(1)	(10)
	b.	Explain the FTP in detail.	(2)	(5)	(1)	(10)

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16CS/IS54

Fifth Semester B.E. Semester End Examination, Dec./Jan. 2019-20

COMPUTER NETWORKS

Time: 3 Hours

Max. Marks: 100

Instructions: 1. *Draw diagrams neatly wherever applicable*
2. *Answer any one question from each Unit*

			L	CO	PO	M
		UNIT - I				
1	a.	Define the term data communication. Explain data communication with respect to its fundamental characteristics and components.	(2)	(1)	(1)	(10)
	b.	Explain the advantages and disadvantages of Mesh, Star and Bus topologies with neat diagrams.	(2)	(1)	(1)	(10)
		OR				
2	a.	Explain the functions of each layer involved in OSI model with a neat diagram.	(2)	(1)	(1)	(10)
	b.	Explain the different categories of networks with neat diagrams.	(2)	(1)	(1)	(10)
			L	CO	PO	M
		UNIT – II				
3	a.	Discuss the different types of transmission impairment with neat diagrams.	(2)	(2)	(1)	(10)
	b.	Discuss the different types of bands of Unguided media in detail.	(2)	(2)	(1)	(10)
		OR				
4	a.	Explain the different modes of Fiber Optic cable along with its advantages and disadvantages.	(2)	(2)	(1)	(10)
	b.	Differentiate between Datagram Networks and Virtual Circuit networks with the help of neat diagram.	(2)	(2)	(1)	(10)
			L	CO	PO	M
		UNIT - III				
5	a.	Discuss the following terms: i. Single bit error. ii. Burst error. iii. Forward error correction. iv. Retransmission.	(2)	(3)	(1)	(04)
	b.	Given the data-word 1111 with the given generator polynomial 1101, i. Show the generation of the code-word at the sender site (using binary division). ii. Show the checking of the code-word at the receiver site in both ways i.e. without error and with error (Assume the error at the MSB bit of the code-word).	(2)	(3)	(2)	(06)
	c.	Define Framing and the reason for its need. Explain in detail the Stop-and-Wait ARQ protocol.	(2)	(3)	(1)	(10)

OR

6 a. Recall the steps undertaken by the sender and receiver for error detection in Internet Checksum. And for the following data items 0x466F, 0x726F, 0x757A, and 0x616E, find the Internet Checksum at:
   i. Sender Site.
   ii. Receiver Site if there is no error.
   iii. Receiver Site if the fourth data item is changed to 0x617E

(1) (3) (1) (08)

b. List the different protocols available for noisy channels. And explain the Go-Back-N ARQ protocol in detail.

(1) (3) (1) (12)

L CO PO M

UNIT - IV

7 a. What is IPv4 address? Explain the IPv4 classful addressing in detail.

(2) (4) (1) (10)

b. Explain IPv4 datagram format in detail with the help of a neat diagram.

OR

(2) (4) (1) (10)

8 a. Explain the IPv6 datagram format with a neat diagram.

(2) (4) (1) (10)

b. Discuss the advantages of IPv6 over IPv4.Compare IPv4 and IPv6 headers.

UNIT -V

(4) (4) (1) (10)

L CO PO M

9 a. Discuss File Transfer Protocol (FTP) in detail with the help of a neat diagram.

(2) (5) (1) (10)

b. Explain User Datagram Protocol (UDP) along with User datagram format and Pseudo header format and its use.

OR

(2) (5) (1) (10)

10 a. Explain SMTP protocol in detail with the help of a neat diagram.

(2) (5) (1) (10)

b. Explain TCP segment format in detail with the help of a neat diagram.

(2) (5) (1) (10)

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16CS/IS54

Fifth Semester B.E. Makeup Examination, January 2019
COMPUTER NETWORKS

Time: 3 Hours

Max. Marks: 100

Instructions: 1. *UNIT I and UNIT II are Compulsory. Answer any three FULL Questions from remaining UNITS*
2. *Show suitable diagrams wherever necessary, which is not mandatory.*

			L	CO	PO	M
		UNIT - I				
1	a.	Define communication system. And Identify the five components of data communication system.	(01)	(01)	(01)	(06)
	b.	Compare and contrast between the following: i. Point-to-Point connection and Multipoint connections. ii. Mesh topology and Star topology.	(01)	(01)	(01)	(04)
	c.	Explain the functions carried out by different layers of OSI reference model.	(02)	(01)	(01)	(10)
		UNIT – II				
2	a.	Describe 'Phase' of a sine wave. Calculate the frequency of a wave with wavelength 2.5m and speed 50m/s. List broad categories of transmission medium used for data communication.	(02)	(02)	(02)	(07)
	b.	What is 'Virtual-Circuit 'networks? Explain its characteristics.	(02)	(01)	(01)	(05)
	c.	Illustrate 'Circuit Switched 'networks showing switch connection and explanation for all the three phases of communication.	(02)	(03)	(02)	(08)
		UNIT - III				
3	a.	Differentiate between the following: i. Single bit error v/s Burst Error. ii. Error Detection v/s Error Correction. iii. Forward Error correction v/s Retransmission.	(02)	(03)	(01)	(05)
	b.	For the following data-word 1011 with the given divisor 1001, i. Show the generation of the code-word at the sender site (using binary division). ii. Show the checking of the code-word at the receiver site in both ways i.e. without error and with error (Assume the error at the MSB bit of the code-word).	(02)	(03)	(03)	(05)
	c.	Explain in detail the Stop-and-Wait ARQ protocol.	(02)	(03)	(01)	(10)
		OR				
4	a.	List the steps undertaken by the sender and receiver for error detection in 16 bit IP Checksum. For the following data items 0x3456, 0xABCC, 0x02BC and 0xEEEE find the 16 bit IP Checksum at: i. Sender Site. ii. Receiver Site if there is no error. iii. Receiver Site if the second data item is changed to 0xABCD	(02)	(03)	(01)	(06)

Note: L : Level, CO : Course Outcome, PO : Programme Outcome, M : Marks

b. Distinguish between the Go-Back-N ARQ protocols and Selective-Repeat ARQ protocol. (02) (03) (01) (04)

c. Write notes on following:
   i. Character-Oriented protocols.
   ii. Bit-Oriented protocols. (03) (03) (01) (10)

UNIT-IV

5 a. Compare classful and classless addressing. Categorize IPv4 address classes. (02) (03) (01) (08)

b. Explain network layer functions. Discuss IPv4 address, address-space and notations used. (02) (01) (01) (06)

c. Explain 'Network Address Translation' (NAT) (02) (01) (01) (06)

OR

6 a. Identify the main deficiencies in network layer IPv4 overcome by IPv6? List and explain other advantages of IPv6 over IPv4. (01) (02) (02) (07)

b. Differentiate interdomain routing from intradomain routing. Classify the protocols used in these concerns with a brief note. (02) (02) (02) (06)

c. State the main reasons for address transition from IPv4 to IPv6. Describe the strategies of this address transition. (02) (02) (01) (07)

UNIT -V

7 a. Explain the UDP protocol in detail. (02) (05) (01) (10)

b. What is DNS? Discuss the use of DNS in the Internet. (02) (05) (01) (10)

OR

8 a. Explain in detail the connection establishment in TCP. (02) (05) (01) (10)

b. Explain the FTP in detail. (02) (05) (01) (10)

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15CS65/16CS/IS54

Fifth Semester B.E. Semester End Examination, Dec/Jan 2018-19

COMPUTER NETWORKS

Time: 3 Hours Max. Marks: 100

Instructions: 1. *UNIT I and UNIT II are Compulsory. Answer any three FULL Questions from remaining UNITS.*
2. *Draw the figures/ diagrams compulsorily wherever necessary.*

UNIT - I

			L	CO	PO	M
1	a.	Define protocol and explain its key elements. List the network topologies used for data communications. Explain any two with a neat diagram.	(2)	(1)	(1)	(07)
	b.	Describe standards in data communication.	(2	(1)	(1)	(05)
	c.	Explain functions of each layers involved in TCP/IP protocol suite	(2	(3)	(1)	(08)

UNIT – II

			L	CO	PO	M
2	a.	Discuss the relation of the following terms with respect to performance of network: i. Bandwidth ii. Throughput iii. Latency iv. Bandwidth Delay product	(2)	(2)	(1)	(08)
	b.	What are the two approaches of switching in networks? Explain any one in detail.	(2)	(2)	(1)	(12)

UNIT - III

			L	CO	PO	M
3	a.	Identify the responsibilities of data link layer. What are the types of errors in network communication? Give examples. Compare error detection with error correction.	(2)	(3)	(1)	(08)
	b.	Derive a CRC codeword using the dataword 1100 and the divisor 1011. Decode the same to show the syndrome as zero.	(2)	(2)	(2)	(07)
	c.	Explain the terms 'Cyclic Code' and 'Checksum' with suitable examples. List the advantages of cyclic codes.	(2)	(1)	(1)	(05)

OR

4	a.	Describe 'Data Link Control' functionalities. How 'Framing' is useful in data link layer? List its variants and protocols used in data transmission.	(2)	(1)	(1)	(08)
	b.	Explain 'Noiseless Channel' and Nyquest theorem.	(2)	(1)	(1)	(07)
	c.	Distinguish between 'Flow control' and 'Error control' with a suitable note on each	(2)	(2)	(1)	(05)

UNIT - IV

			L	CO	PO	M
5	a.	Discuss the different addressing classes used in IPV4. Give the details of address space.	(2)	(4)	(1)	(10)
	b.	Compare and contrast the IPV4 and the IPV6 headers.	(2)	(4)	(1)	(06)

c. Find the netid and the hostid of the following IP addresses.
   i. 117.34.3.8
   ii. 207.3.54.12

(2) (4) (2) (04)

OR

6 a. Explain the IPV6 header format with its extension headers.

(2) (4) (1) (10)

b. Find the:
   i. First address
   ii. Last address
   iii. Number of addresses

   For the addresses 205.16.37.39/28 (assume the MASK as 11111111 11111111 11111111 11110000)

(2) (4) (2) (05)

c. Discuss the advantages of IPV6 over IPV4 protocol.

(2) (4) (1) (05)

UNIT -V

L CO PO M

7 a. Discuss 'User Datagram Protocol' (UDP) and list different well known ports of UDP. With a neat diagram explain 'User Datagram', giving the size of header and all of its fields details.

(2) (2) (2) (08)

b. What is 'Hierarchy of Name Servers' in distribution of name space in Domain Name System (DNS)? Differentiate zone and root servers with a brief note and an example for each.

(2) (2) (1) (06)

c. Explain with an example and a diagram; how a DNS client/server program can support e-mail program to find an IP address of a mail recipient.

(2) (2) (2) (06)

OR

8 a. Write a note on the services offered by TCP to the processes at application layer. List with brief note for all of the TCP features providing the service.

(1) (2) (1) (08)

b. How FTP differs from other client server applications for data exchange? Justify your answer with reference to the ports used, two connections, file type, data structure and modes of transmission.

(2) (2) (2) (06)

c. Explain 'DNS in the Internet' showing domain space section tree divided into different sections.

(2) (2) (1) (06)