

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) What is meant by Vulnerable period w.r.t ALOHA?
- b) What is meant by the preamble in 802.3 frame format?
- c) Give two methods of broadcast routing.
- d) What are the two basic mechanisms of congestion control?
- e) What do you mean by encryption and decryption

(5x2)

UNIT - I

- II. What are the different layers of the OSI model? Draw a diagram of the OSI model and explain the functions of each layer. (10)
- III. Why are flow control protocols used in Data link layer? Explain the working of the Go-Back-N protocol with the help of a neat diagram. (10)
- IV. Explain the working of IEEE 802.5 along with its frame format. How does IEEE 802.5 different from IEEE 802.4? (10)

UNIT - II

- V. Define the term "principle of optimality". With the help of a suitable example explain the working of distance vector routing. (10)
- VI. Write down the services provided by TCP and UDP protocols. What is the significance of port address in the transport layer? (10)
- VII. Write notes on the following:-
 - a) Email
 - b) SNMP(2x5)

x-x-x

1019
B.E. (Information Technology)
Fourth Semester
ITE-405: Computer Networks (OLD)
(Common with ITE-443/422)

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) Explain difference between Wired media and Wireless media?
- b) What is Packet Switching? How it is different from Circuit Switching?
- c) What is crash recovery at Transport Layer?
- d) What is dynamic routing?
- e) How IPv4 differentiates from IPv6?

(5x2)

UNIT – I

II. a) Differentiate between OSI and TCP/IP reference model.

b) Explain with applications different LAN topologies.

(5,5)

III. a) Explain with diagram Fibre optic cable and its advantages.

b) What is HDLC protocol? Explain its operations and frame types.

(5,5)

IV. How CSMA differs from CSMA/CD? In CSMA/CD network with a data rate of 10Mbps, the maximum distance between any station pair is found to be 2500 m for the correct operation of the collision detection process. What should be the maximum distance if we increase the data rate to 100 Mbps? To 1 Gbps? To 10 Gbps? (10)

UNIT – II

V. a) What are the design issues of various routing algorithms?

b) How load shedding helps to control congestion in networks?

(5,5)

VI. a) How TCP differs from UDP in terms of contents in the header?

b) Explain the difference between distance vector and link state routing algorithms with example.

(5,5)

Sub. Code: 7964

(2)

VII. Write short notes on the following:-

a) Architecture of DNS

b) SNMP

(5,5)

x-x-x

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B.E. (Information Technology)

Fourth Semester

ITE-473/402: Computer Networks

allowed: 3 Hours

Max. Marks: 50

E: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) What are the key elements of a protocol?
 - b) What does the number on a NAK frame mean for selective repeat ARQ?
 - c) Define forwarding in Network layer-
 - d) What is port address?
 - e) What is the relationship between plain text and ciphertext
- (5x2)

UNIT - I

- II.** a) Network devices generally functions at the lower three layer of the OSI reference model. Briefly explain the reason.
- b) If 10100101 is the original messages and $x^3 + 1$ is generator polynomial, then calculate the data stream send by sender. (2x5)
- III.** a) What are flow control protocols? Explain all operations of Go-Back-N ARQ in detail with diagrams.
b) Compare selective Repeat ARQ with GO-Back-N ARQ. (6,4)
- IV.** a) Explain the frame formats of IEEE 802.3 Standard in detail.
b) Draw the flow diagram to explain the working of CSMA along with persistence strategies. (4,6)

UNIT - II

- V.** a) Differentiate between Datagram and Virtual Circuit in tabular form.
b) Explain the Hierarchical routing in detail using suitable example. (2x5)
- VI.** a) Explain Three-Way Handshake Mechanism used by TCP to terminate a Session reliably.
b) Explain IP Header in detail. (2x5)
- VII.** Write Short notes on following:
a) DNS
b) Message security (2x5)

x-x-x

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B.E. (Information Technology)
Fourth Semester
IT-422: Computer Networks
(May – 2013)

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Part.

x-x-x

Q1.	What are the key elements of a protocol?	
a)	What are Generic Domains ?	
b)	Define forwarding in Network layer.	
c)	What do you mean by redundancy?	
d)	Write down different port address used in Transport Layer	(5*2=10)
	Part A	
Q2.	Explain the concept of switching. Compare circuit switching and packet switching. What does multiplexing means? Explain FDM with the help of diagram.	(5,5)
a)	If 1010000 is the original messages and $X^3 + 1$ is generator polynomial, then calculate the data stream send by sender .	
b)	10011001 11100010 00100100 10000100 is original data with k=4 & m=8(where k is no. of total data units and m is no. of bits per data unit). If 11011010 is the checksum of original data , then find what is happened with data at receiving end.	(5,5)
Q4.	Explain the frame formats of IEEE 802.3 and 802.4 Standard in detail. Identify the five major components of data communication system.	(5)
a)		(5)
b)		
	Part B	
Q5.	Explain the working of Leaky Bucket and Token Bucket . Also discuss their advantages and disadvantages. Define the principle of Optimality with suitable example.	(7)
a)		(3)
b)		
Q6.	Discuss the working of 3-way hand shake when establishing a connection in Transport layer . Explain TCP and UDP Headers.	(5)
a)		(5)
b)		
Q7.	Write Short notes on following: i) SNMP ii) E-mail	(5,5)

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B.E. (Information Technology) Fourth Semester
ITE-473: Computer Networks

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Section.

x-x-x

1.

- a) How is the minimum size of Ethernet frame determined?
- b) How does an FDDI node determine whether it can send asynchronous traffic and synchronous traffic?
- c) What are the advantages of allowing persistent TCP connections in HTTP?
- d) Why is UDP pseudo header included in UDP checksum calculation?
- e) Mention the advantages of error correction by receiver as compared to error detection.
- f) What is the network address in a class A subnet with the IP address of one of the hosts as 25.34.12.56 and mask 255.255.0.0?
- g) What is PDP?
- h) State the function of bridges.
- i) What is the difference between port address, physical address and logical address?
- j) What is SNMP?

Section : A

(1*10 = 10)

- 2. Explain the differences between OSI model and TCP/IP model? (10)
- 3. In a digital communication system a 32 symbol signal is used in transmission. Each symbol is transmitted in a 5 μ sec time slot with equal probability.
 - a) Calculate the symbol rate of the 32 symbol signal.
 - b) Calculate the information content of a symbol.
 - c) Calculate the required bandwidth (in kHz) and the capacity (in kbps) of the transmission medium to transmit the 32 symbol signal.
 - d) Consider that the 32 symbol signal is applied to a binary encoder and a binary signal is obtained at the output of the encoder. Calculate the required bandwidth (in kHz) and the capacity (in kbps) of the transmission medium to transmit the binary signal. (2.5*4 = 10)
- 4. a) Briefly compare the synchronous and asynchronous transfer modes in the following aspects: a) Which one is suitable for constant bandwidth channels and which one for variable (or dynamic) bandwidth channels? b) Which one is subjected to waste of bandwidth and which one uses the bandwidth efficiently? (6)
b) Discuss the problems encountered in applying CSMA/CD algorithm to wireless LANs. (4)

Section B.

5. Discuss the Random Early Detection mechanism and derive the expression for drop probability. (1)
6. Explain the RIP algorithm in detail with a suitable example. (1)
7. Write short notes on the following: a) Multi Media b) SNMP (5*2 = 10)

X-X-X