

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER– IV• EXAMINATION – WINTER 2016

Subject Code: 2640001

Date: 20/10/2016

Subject Name: Fundamentals of Networking

Time: 10.30 AM TO 01.00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a) Write any seven. 07**
1. Write one disadvantage of layering.
 2. Write full form of MANets.
 3. Write how hub and switch are different with respect to communication between two parties.
 4. How a CO connection is different than CL connection?
 5. What is a composite signal?
 6. Draw a digital and an analog signal.
 7. Write one difference between TDM and FDM
 8. Explain the term: attenuation.
 9. Draw a graph indicating how one and zero are represented in Manchester encoding.
- (b) Write any seven. 07**
1. Write the relation between a frequency and a wave length of a signal.
 2. Give the full form of ISM
 3. What is an infrastructure mode in 802.11?
 4. OFDMA is used in which wireless network?
 5. What is the role of an access point in 802.11?
 6. How bit stuffing is done in data <- 1111100111111?
 7. What is the difference between a single bit and a burst error?
 8. What is the relation between addition and subtraction in modulo-2 arithmetic?
 9. What is the importance of timer in protocols for communication while sending frames?
- Q.2 (a) Write any seven. 07**
1. What improvement is provided by slotted ALOHA compared to normal ALOHA?
 2. What is the meaning of word *base* in the wiring naming convention in Ethernet like 100baseF?
 3. What is the speed of fast Ethernet?
 4. List service classes of 802.16.
 5. What is a dotted decimal notation?
 6. List the contents of a link state packet.
 7. BGP routes between what?
 8. Write full form of MPLS.
 9. What is the meaning of ordered delivery service of the transport layer?
- (b) Write any seven. 07**
1. Which field helps the internet transport layer in multiplexing?
 2. What is persist timer?
 3. What is the difference in asymmetric and symmetric connection close?
 4. Write the full form of ECN.
 5. What is recursive name resolution in DNS?

6. Why DDNS is called dynamic?
7. What is a persistent connection in HTTP?
8. Name one method to be used for client side animation.
9. How POP3 helps the user to access the mails?

OR

- (b)** Write any seven. **07**
1. Why is a Bluetooth header is repeated three times?
 2. Name one Bluetooth profile.
 3. What is a mail alias?
 4. What is a proxy in SMTP?
 5. What is the need of AA resource record in DNS?
 6. What a socket contains?
 7. Write the full form of RED.
 8. What is a delayed duplicate?
 9. What is an isochronous property in transport layer?

- Q.3 (a)** 1. Explain any two advantages of layering. **02**
2. Provide any four differences between LAN and WAN. **02**
3. Calculate the maximum data rate of a noiseless channel with 4 levels and frequency of 10 Mb. **03**
- (b)** 1. Write any two differences between a TCP/IP and an OSI model. **02**
2. Provide any three differences between sensor networks and MANets. **03**
3. Draw a signal for data 1010 applying two frequencies while using FDM. **02**

OR

- Q.3 (a)** 1. Explain the term distributed system. How it is different from networks? **02**
2. List any three obstacles in implementing the home networks. **03**
3. Write two differences between packet and circuit switching. **02**
- (b)** 1. Give any two differences between a client server and a peer to peer system. **02**
2. Give three differences between a switch and a router. **03**
3. Explain terms distortion and noise **02**
- Q.4 (a)** 1. Explain the problem of synchronization with multiple senders and receivers **03**
2. Why errors are not always handled at data link layer? **02**
3. Write two differences between a DIX and an Ethernet frame. **02**
- (b)** 1. Explain why FDM or TDM does not work for data transmission? **02**
2. Show how hamming code can be used to correct a burst error. **03**
3. Explain what a DC component of a signal is. **02**

OR

- Q.4 (a)** 1. Explain the total internal reflection principle in brief **02**
2. What is the need for two different windows for sender and the receiver? **02**
3. How dual speed cards and auto negotiation helped upgrading of Ethernet cards? **03**
- (b)** 1. Explain the exposed station problem **02**
2. Why in selective repeat the size of the sequence number is double than the size of a window? **03**
3. How a DCF and a PCF mode worked together in 802.11? **02**
- Q.5 (a)** 1. Explain how a network layer aggregates multiple routes? **02**
2. List ant two shortcomings of the internet transport layer **02**
3. Write any three reasons for keeping DNS in hierarchical fashion. **03**

- (b) 1. Write any three differences between connection oriented and connectionless forwarding 03
2. Give two points of comparison between a transport layer and data link layer. 02
3. Draw a diagram describing how the mailing system works. 02

OR

- Q.5** (a) 1. Explain any one requirement of a good routing algorithm. 02
2. How deviation in RTT values is managed by TCP? 03
3. Explain the need for session variables in HTTP. 02
(b) 1. What is a hot potato algorithm in BGP? 02
2. How fragmentation is managed by TCP? 03
3. Draw the diagram to indicate how Bluetooth scatternet is organized. 02
