Date: 30/05/2017

Total Marks: 70

[07]

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GUJARAT TECHNOLOGICAL UNIVERSITY

MCA – SEMESTER IV – EXAMINATION – SUMMER 2017

Subject Code: 640001

Subject Name: Fundamentals of Networking

Time: 10.30 AM TO 01.00 PM

Instructions:

- 1. All questions are compulsory. Internal Options may be there.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.

Q1.A. Answer the following:

- 1. Network layer operates in a Hop to Hop Manner. State True or False with reason.
- 2. Data Link layer is generally implemented in hardware. State True or False with reason.
- 3. Which component of a PC connects the PC with a switch in a switched Star LAN?
- 4. Mention the name of any leading company which manufactures Network Interface Devices.
- 5. Mention the most important difference between a Hub and a Switch from functionality point of view.
- 6. Which is the most popular technology as on today for WLAN?
- 7. Mention any popular technology for PAN?

Q1.B Answer the following:

- 1. What is the maximum date rate for a noiseless channel with 3 KHz bandwidth and binary signal?
- 2. What is meant by Guard Band with respect to FDM?
- 3. What is FHSS?
- 4. Between single mode and multi mode fiber, which one gives better performance?
- 5. What is the importance of ISM Band?
- 6. What is meant by a Geo Stationary Satellite?
- 7. What is meant by footprint of a satellite?

Q2.A Answer the following:

1. 2.	Compare and Contrast Copper Cable based systems with Fiber Optic based systems. Briefly explain: Multi Path Fading in Wireless Systems	[05] [02]
Q2.B	Answer the following:	
1. 2.	Explain the hidden and exposed station problem in wireless systems. Briefly explain the working of p-persistent CSMA. OR	[05] [02]
Q2.B	Answer the following:	
1. 2.	Explain the working of CSMA/CD with binary exponential back-off. Briefly explain how RTS and CTS approach solve the hidden and exposed station problem.	[05] [02]

Q3.A Answer the following:

- 1. Mention and very briefly explain in 1-2 sentences the desirable properties of any routing **[05]** algorithm.
- 2. Differentiate between the job of routing algorithm and the forwarding process. **[02]**

Q3.B Answer the following:

1.	Explain the Hop by Hop Choke Method for congestion control in network layer.	[05]
2.	Briefly explain collision and contention.	[02]

OR

Q3.A	Answer the following:	
1. 2.	Explain the count to infinity problem arising in Distance Vector Routing algorithm. Briefly explain the optimality principle with respect to routing.	[05] [02]
Q3.B	Answer the following:	
1. 2.	Write a short note on: Bluetooth Architecture. What is meant by milk and wine policy with respect to load shedding for congestion control at network layer?	[05] [02]
Q4.A	Answer the following:	
1. 2.	Explain how the 3 way handshake protocol handles various abnormal scenarios during connection release. What is meant by a reliable and connection oriented transport protocol?	[05] [02]
Q4.B	Answer the following:	
1. 2.	Explain in detail the working of Selective Repeat Protocol. Briefly explain: Piggybacking and its advantage.	[05] [02]
	OR	
Q4.A	Answer the following:	
1. 2. Q4.B	Mention and briefly explain in 1-2 sentences the five Transport Service Primitives. Briefly explain the two army problem. Answer the following:	[05] [02]
1. 2.	Explain in detail the working of Go back N Protocol. Briefly explain: Pipelining and its advantage.	[05] [02]
Q5.A	Answer the following:	
1. 2.	Write a short note on: DNS Resource Record Types. Compare IMAP with POP3 on any two relevant criteria.	[05] [02]
Q5.B	Answer the following:	
1. 2.	Explain the working of DES algorithm. Why does the two key Triple DES follow EDE approach instead of EEE?	[05] [02]
	OR	
Q5.A	Answer the following:	
1. 2.	Explain different types of DNS domains with examples. Give full form and explain very briefly in 1-2 sentences the role of SMTP protocol.	[05] [02]
Q5.B	Answer the following:	
1. 2.	Explain Transposition Cipher with example. Briefly explain: One Time Pads.	[05] [02]
