CS1544/CS415

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RAMAIAH INSTITUTE OF TECHNOLOGY

(Autonomous Institute, Affiliated to VTU)
Bangalore – 560 054

SUPPLEMENTARY SEMESTER EXAMINATIONS – AUGUST 2017

Course & Branch	**:**	**B.E : Computer Science and Engineering**	**Semester**	**:**	**IV**
Subject	**:**	**Data Communication**	**Max. Marks**	**:**	**100**
Subject Code	**:**	**CS1544/CS415**	**Duration**	**:**	**3 Hrs**

Instructions to the Candidates:

- Answer one full question from each unit.
- Write figures wherever necessary.

UNIT – I

1.	a)	What is data communication? What are the four important fundamental characteristics.	CO1	(06)
	b)	What is a protocol? Briefly explain its key elements.	CO1	(05)
	c)	Explain the responsibilities of transport, network and Data Link layer in TCP reference model.	CO2	(09)
2.	a)	With a neat figure explain five components of data communication.	CO2	(06)
	b)	With a neat diagram , explain TCP/IP protocol suite.	CO2	(10)
	c)	What are the differences between Physical address, Logical address and port address.	CO2	(04)

UNIT – II

3.	a)	Differentiate between baseband and broadband transmission.	CO3	(04)
	b)	What do you mean by Transmission impairment? Explain the causes of transmission impairment.	CO3	(10)
	c)	With an example, explain multiline transition (MLT 3) scheme.	CO3	(06)
4.	a)	Define bandwidth. A periodic signal has bandwidth of 20 Hz. The highest frequency is 60Hz. What is the lowest frequency'?	CO3	(04)
	b)	Calculate the Shanon channel capacity in the following cases : i) Bandwidth = 20 kHz SNR_{db} = 40 ii) Bandwidth = 200 kHz SNR_{db} = 6	CO3	(06)
	c)	Define line coding. Describe unipolar NRZ, Polar NRZ- L, Bipolar AMI and Manchester encoding by applying on the information sequence 1 01 0 1 1 1 0 0.	CO3	(10)

UNIT – III

5.	a)	Explain with an example , how errors are detected using Cyclic Redundancy Check.	CO4	(06)
	b)	Explain the Checksum with an example.	CO4	(06)
	c)	Explain the three phases of virtual circuits with an example.	CO4	(08)
6.	a)	Differentiate between Circuit switching and Packet Switching.	CO4	(06)
	b)	What is CRC? If the generating polynomial for CRC is $X^4 + X^3 + 1$ and message word is 11110000, determine the check bits and coded word.	CO4	(08)
	c)	Describe the method of spreading the bandwidth using FHSS technique.	CO4	(06)

UNIT – IV

7.	a)	A pure ALOHA transmits 200-bit frames on a shared channel of 200 khps. What is the throughout if the system produces 1000 frames per second.	CO5	(04)
	b)	With a neat diagram, Explain CSMA/CD protocol.	CO5	(10)
	c)	What is NIC? What are its functions?	CO5	(06)
8.	a)	What do you mean by channelization? Explain the protocols used for channelization.	CO6	(10)
	b)	Explain the point to point protocol frame format. Also briefly describe different transition phases of PPP in establishing connection from home PC to ISP.	CO5	(10)

UNIT – V

9.	a)	Explain the IEEE 802.11 architecture.	CO6	(06)
	b)	How does a VLAN reduce network traffic?	CO7	(04)
	c)	With an example, explain looping problems in bridges, also explain how it can be overcome by using spanning tree approach.	CO7	(10)
10.	a)	With a neat diagram, write brief note on backbone LAN with two switches and three virtual LANs.	CO7	(06)
	b)	Explain in brief the Bluetooth architecture.	CO7	(04)
	c)	Explain the Hidden and Exposed station problems in IEEE 802.11.	CO7	(10)

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