Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India
(Autonomous College Affiliated to University of Mumbai)

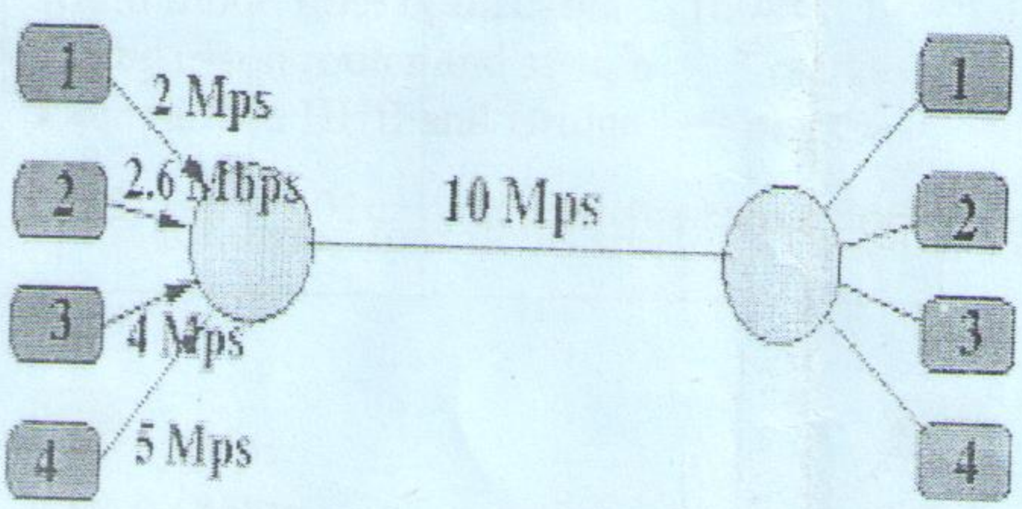
End Semester Examination

November 2019

Max. Marks: 60 | Duration: 3 Hrs.
Class: B.E./BTech. | Semester: VII
Course Code:ELE 73B | Branch: ETRX
Name of the Course: Computer and Communication Networks

Instruction:

1) All questions are compulsory
2) Assume suitable data if necessary
3) Figure to the right indicate full mark

Q. No.		Max. Marks	CO-BL-PI
1 a)	Does CSMA/CD work universally in the wired networks? Discuss.	5	2-3-2.2.4
b)	Identify the cable use to connect the following: 1) PC to PC 2) Router to PC 3) PC serial port to Router console port 4) Floors in Single Building Also compare: 1) Router and Switch 2) HUB and Bridge	10	1-2-2.1.2
2 a)	Consider the following 4 flows sharing a common bottle neck link:  Compute the fair share of each unsatisfied flow using Max-Min Fairness algorithm. **OR**	10	2-3-2.2.3

	What is ALOHA? Derive expression for efficiency of pure and slotted Aloha.	10	2-3-2.2.3
b)	Explain bus topology with number of nodes, number of links required, number I/O ports required, advantages and limitations.	5	1-2-2.1.2
3a)	Explain how Subnet Mask Works? Assume IP Address :192.168.1.1 Now Assume that the administrators requirement is 40 hosts and is using Class C network-id address : 192.168.1.0. Using the concept of Subnetting find the possible host/subnets and subnet ranges. **OR** An ISP is granted a block of addresses starting with 90.100.0.0/16 (65,536 addresses). The ISP needs to distribute these addresses to three groups of customers as follows: a. The first group has 64 customers; each needs 256 addresses. b. The second group has 128 customers; each needs 128 addresses. c. The third group has 128 customers; each needs 64 addresses. Design the sub-blocks and find out how many addresses are still available after these allocations.	10 10	3-3-3.1.6 3-3-3.1.6
b)	Explain the boot-up process of a typical router with an appropriate flowchart.	5	1-2-2.1.2
4a)	What is NAT? Explain how address translation is done in NAT.	5	4-3- 2.2.3
b)	What are the challenges of symmetric key cryptography? Bob wants to send message "HOSPITALITY" to Alice and uses key "Treat" to encrypt the message. Identify relevant Cryptography Algorithm and use the same to perform encryption and decryption. **OR** Define the following with example: 1) SQL Injection attacks 2) Botnets 3) DoS attacks 4) Replay attacks	10 10	4-3- 2.2.3 4-3- 2.2.3