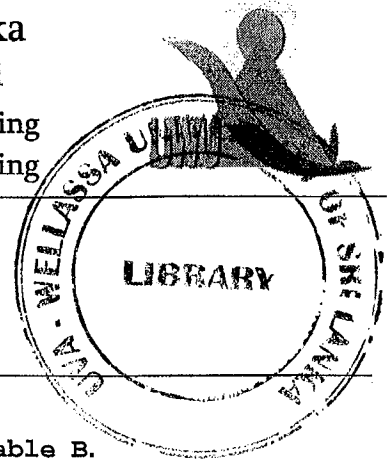


Uva Wellassa University, Sri Lanka

End Semester Examination – February 2011

CST341-3 Data Communication and Networking

SCT377-3 Data Communication and Networking



Part A

Time: Two (02) hours

Total 04 Questions

Answer all questions

1)

- a) Match the following terms in Table A with most suitable meanings in Table B. (Copy Table A to your answer book and write the correct letter) (20 Marks)

Table A	
I. Bandwidth	
II. MAC Address	
III. NOS	
IV. Packet	
V. Repeater	
VI. Router	
VII. Switch	
VIII. Throughput	
IX. Wi-Fi	
X. Wireless Transceiver	

Table B	
a)	actual speed of data transfer
b)	amplifies signals to prevent degradation on long cables
c)	another name for the 802.11 standard
d)	can be a computer, peripheral, or communication device
e)	converts digital signals to radio waves
f)	enables individual nodes to communicate in a network
g)	maximum speed at which data can be transmitted
h)	sends data packets between networks
i)	software that controls network communications
j)	two or more computers connected together via software so they can communicate
k)	unique number assigned by the manufacturer to every NIC
l)	unit of data transmitted in a network

- b) Compare and contrast connectionless communication and connection-oriented communication. (03 Marks)
- c) What is a parity bit? (02 Marks)
- 2) To get the Internet connection a student connected his 3G capable mobile phone and his laptop via Bluetooth. When he checks the speed of the link with the mobile phone it was 3 Mbps. When he checks the speed with a server, it was 0.1 Mbps in downlink and 0.03 Mbps uplink. He realized that the phone operates in 2G connection. Next he turned on 3G connection and checked the speed with that previous server again. Then the speed of downlink was 1.54 Mbps and uplink speed was 0.33 Mbps.
- a) Write down two advantages in connecting devices through Bluetooth. (4 Marks)
- b) Even though the operating system says the link speed is 3 Mbps, what are the reasons to report the maximum downlink speed as 1.54 Mbps? (4 Marks)
- c) Give reasons to have two different speeds for uplink and downlink? (4 Marks)
- d) His friend suggested to use a USB cable instead of Bluetooth to get higher internet speed. Can you agree for that suggestion? Explain your answer. (4 Marks)
- e) Explain UMTS, HSDPA and HSUPA in mobile phone technology. (4 Marks)
- f) If this student gets a public IP address for his Internet connection, write down two advantages he can have than a private IP address? (5 Marks)

- 3) You are given a full block of IP addresses (from 200.201.202.0 to 200.201.202.255) to create five (5) subnets for an organization.
- a) To fulfill these requirements how many bits should be borrowed from host section? (5 Marks)
 - b) What is the subnet mask that can be used in this scenario? (5 Marks)
 - c) What is the maximum number of hosts supported by each subnet? (5 Marks)
 - d) The software development branch of the organization requesting 35 IP addresses for their PCs. Without changing other subnets can you fulfill this request? Explain. (5 Marks)
 - e) Write down last six (6) IP addresses of the software development branch. (5 Marks)

4)

- a) Write short notes about Adaptive routing and Non-adaptive routing. (05 marks)
- b) What you mean by "Station keeping" in satellite communication. Explain. (05 marks)
- c) Briefly explain the CSMA/CD protocol (05 marks)
- d) Which of the following are valid IPv6 addresses? Choose **three (3)** and write corresponding letters on your answer scripts. (06 marks)

- i) 2001:0db8:0000:0000:0000:0000:1428:57ab
- ii) 2001:0db8::1428:57ab
- iii) 2001::1685:2123::1428:57ab
- iv) 2001:99:ab:1:99:2:1:9
- v) 2001:1428:57ab:1685:2123:1428:57ab
- vi) 2001:0ab9::3::59ff:1ac5

- e) What is IPv6 over IPv4 tunneling? (04 marks)
