

DUE 2/3/09

PLEASE TYPE YOUR ANSWERS ON A SEPARATE SHEET ON PAPER! Answers to question 1 will be short definitions. Questions 2 and 3 will require a 2-3 paragraph answer.

1. Please review the web based tutorial “Parts of a Telecom Network” located at:

<http://www.econ.ilstu.edu/dloomis/telecomparts/index.html>

According to the tutorial,

- A. What is CPE?
- B. When was CPE deregulated?
- C. When was ownership of Inside Wire transferred to the homeowner?
- D. What is the other name for the “Last Mile”?
- E. What is a POP?

2. Why is a local telephone company in a city usually considered to be a natural monopoly? What would happen if two competing telephone companies were established?

3. Why is it beneficial to build a network instead of connecting people individually? At what point should you build two interconnected networks instead of one big network? Explain.

4. You are to design a local public switched telephone network. This is only a local network and does not connect to the long distance network. To keep things simple, your network only has 2 Components –

switches and wire. The switch is for your central office (CO) and the wire is for your local loops. Wire costs \$5/foot/line. Assume that every house is 2,000 feet from the central office.

You may choose from the following switches:

Name	Capacity	Cost
RT-500	500	\$100,000
SM-2000	2,000	\$200,000
BZ -5000	10,000	\$500,000
DMS 100	25,000	\$1,000,000
5ESS	50,000	\$1,500,000

Please build a local network for a community of the following size AT LEAST COST and fill in the table:

# of houses	Cost of Wire	Type of Switch	# of switches	Cost of switches	Total Cost	Average Cost per House
100						
300						
1000						
5000						
10000						
20000						
40000						
100000						

Does this cost “function” exhibit economies of scale? Why or why not?