(EIE417) Suggested Answer of Mid-term Test

Question 1

Sketch of Answer - (Note: a range of answers are acceptable; marks are given according to the logic of the arguments presented.)

This question requires an organized report, describing two networking technologies, and some discussions about the decision of choosing a technology appropriate for a bank. Much of the answer should be derivable from the course notes.

The answer should consist of 4 parts:

Part 1:

Descriptions of two network technologies. Marks will be given for coverage of essential elements of any two of the following: Frame relay, switched multi-megabit data service (SMDS), asynchronous transfer mode (ATM), or other technologies. Advantages and disadvantages should be included in each case, similar to course notes.

Part 2:

A discussion of the choice of technology for the next 10 years. ATM should be a likely answer, as it will support a much faster network requirement. However, a reasoned argument for other choices is acceptable.

Part 3:

A discussion of access methods for other parts of the bank. Frame relay is a possible choice, as a transitional arrangement. However, a reasoned argument for other choices is acceptable.

Part 4:

A discussion of connection methods with other banks and customers. A possible answer is to use the SWIFT network for bank communication. For general customers, the Internet seems to be inevitable. However, a reasoned argument for other choices is acceptable.
Question 2

Leased line
A leased line is a telephone line that has been leased for private use. In some contexts, it's called a dedicated line. It connects two or more different locations and is used solely by the subscribers.

Advantages: Low to medium cost; Certain degree of security
Disadvantages: Limited transmission rate; Limited coverage

Public data network
A public data network provides a common network to allow public to share its network facilities and services. It is available to anyone who wants to access.

Advantages: Low cost; Wide coverage
Disadvantages: Limited transmission rate; Poor security

Private data network
A private data network is owned by the company/organization that uses it. It is connected only to authorized users.

Advantages: Better Security; Higher transmission rate
Disadvantages: Limited coverage; Relatively higher cost

Sketch of Answer

There are three case studies. Some sketches are:

Case 1: An X.25 sub-net approach seems to be feasible because large data is usually not transmitted. The cost is low. Also, the error tracking capability will ensure data integrity. Other arguments should be included, such as based on the company scale, expected usage, required level of reliability, etc. However, a reasoned argument for other choices is acceptable.

Case 2: The large LANs may justify a frame relay approach. Connection between LANs is easy, and high speed can be achieved. Other arguments should be included, such as based on the company scale, expected usage (internal use), required level of reliability, etc. However, a reasoned argument for other choices is acceptable.

Case 3: Frame relay is also possible here because of the likely compatibility with other LANs in foreign countries. Other arguments should be included, such as based on the company scale, expected usage (international use), required level of reliability, etc. However, a reasoned argument for other choices is acceptable.