



DATE DONE.....
INVIGILATOR.....
DATE RETURNED.....
DATE REVISED.....

COMPUTER STUDIES PP 2
TERM 1 2016
FEBRUARY SERIES
TIME: 2 ½ HOURS

INSTRUCTIONS.

- Indicate your name and admission number on the top right hand corner of each print outs.
- Answer all the questions.
- Save your work in a storage medium with no pass word.

1. (a) Using a word processing package, type the passage below as it appears and save it as

Multi 1

(30mks)

Multiplexing

Multiplexing is a technique that enables broadband media to support multiple data channels. Multiplexing makes sense under a number of circumstances:

- ✓ *When media bandwidth is costly.* A high-speed leased line, such as a T1 or T3, is expensive to lease. If the leased line has sufficient bandwidth, multiplexing can enable the same line to carry mainframe, LAN, voice, video conferencing, and various other data types.
- ✓ *When bandwidth is idle.* Many organizations have installed fiber-optic cable that is used to only partial capacity. With the proper equipment, a single fiber can support hundreds of megabits—or even a gigabit or more—of data per second.
- ✓ *When large amounts of data must be transmitted through low capacity channels.* Multiplexing techniques can divide the original data stream into several lower bandwidth channels, each of which can be transmitted through a lower-capacity medium. The signals then can be recombined at the receiving end.

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ultiplexing refers to combining multiple data channels for transmission on a common medium. *Demultiplexing* refers to recovering the original separate channels from a multiplexed signal. Multiplexing and demultiplexing are performed by a multiplexer (also called a mux), which usually has both capabilities.

Frequency Division Multiplexing

F This technique works by converting all data channels to analog form. Each analog signal can be modulated by a separate frequency (called a “carrier frequency”) that makes it possible to recover that signal. During the demultiplexing process. At the receiving end, the demultiplexer can select the desired carrier signal and use it to extract the data signal for that channel.

FDM can be used in broadband LANs. (A standard for Ethernet also exists.) One advantage of FDM is that it supports bidirectional signaling on the same cable. That is, a frequency can originate from both ends of the transmission media at once.