

大同大學 九十三年 學年度研究所碩士在職班入學考試試題

考試科目：科技英文

所別：通訊工程研究所

第 1/1 頁

註：本次考試 不可以參考自己的書籍及筆記； 不可以使用字典； 不可以使用計算器。

Please translate the following paragraphs into Chinese.

1. A phase-lock loop (PLL) is a simple and practical system for the demodulation of angle-modulated signals. It is a feedback control system and is analyzed as such. Phase-lock loops also provide simple implementations of frequency multipliers and frequency dividers.
(6 points)
2. Systems may process analog or digital signals. All systems obey energy conservation. Loosely speaking, the state of a system refers to variables, such as capacitor voltages and inductor currents, which yield a measure of the system energy. The initial state is described by the initial value of these variables or initial conditions. (6 points)
3. Most network protocols are designed to send data and then wait for an acknowledgment. This leads to asymmetric data patterns, in which most of the data is sent in one direction, and smaller amounts of data return in the other direction. (6 points)
4. Extracting the information-bearing signal is known as demodulation. Modulation techniques not only allow us to embed information into signals that can be transmitted effectively, but also make possible the simultaneous transmission of more than one signal with overlapping spectra over the same channel, through a concept referred to as multiplexing. (6 points)
5. A read-only memory (ROM) is essentially a device in which permanent binary information is stored. The information must be specified by the designer and is then embedded into the ROM to form the required interconnection or electronic device pattern. Once the pattern is established, it stays within the ROM even when power is turned off and on again; that is, ROM is nonvolatile. (6 points)
6. An antenna array with orthogonal polarizations can find its applications in Direct Broadcasting Systems (DBS), Personal Communication Services (PCS) and Indoor Communication Systems (ICS). The current DBS technology uses both horizontal and vertical polarizations to double the number of channels available in the limited bandwidth, and therefore, microstrip arrays with orthogonal polarizations are needed; In PCS and ICS, waves are scattered by the environmental and the signal takes several paths from a transmitter to a receiver, with resulting fluctuations in amplitude because of multi-path fading effect. One effective way to combat this effect is to implement a polarization diversity technique for which antenna arrays with orthogonal polarizations and very low cross couplings (-30 dB) are needed. (10 points)