

# 大同大學 九十七 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：電機工程研究所

共 全 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。

請將以下英文段落翻譯成中文

1. UMTS (Universal Mobile Telecommunications System) uses W-CDMA (wideband code division multiple access). It combines GSM's Mobile Application Part core and the GSM family of speech codecs and can be connected to various backbone networks like the Internet, ISDN (integrated services digital network) and GSM (global system for mobile communications). The GSM Association has endorsed LTE. The LTE project is not a standard; it will result in Release 8 of the UMTS standard. (20%)
2. The differential-pair or differential-amplifier configuration is the most widely used building block in analog IC design. The input stage of every operational amplifier is a differential amplifier. There are two reasons for preferring differential to single-ended amplifiers: Differential amplifiers are insensitive to interference, and they do not need bypass and coupling capacitors. (15%)
3. An open-loop (direct) system operates without feedback and directly generates the output in response to an input signal. A closed-loop system uses a measurement of the output signal and a comparison with the desired output to generate an error signal that is used by the controller to adjust the actuator. (15%)
4. In this paper, robust adaptive sliding mode tracking control for discrete-time multi-input multi-output systems with unknown parameters and disturbances is considered. The proposed sliding mode controller can reject the disturbance, and output tracking can be approximately achieved. Simulation results are presented to illustrate the proposed approach. (15%)
5. It is of interest to calculate the inductor current ripple  $\Delta i_L$ . The peak inductor current is equal to the dc component  $I$  plus the peak-to-average ripple  $\Delta i_L$ . This peak current flows through not only the inductor, but also through the semiconductor devices that comprise the switch. Since we know the slope of the inductor current during the first subinterval  $DT_s$ , and we also know the length of the first subinterval, we can calculate the ripple magnitude. The  $i_L(t)$  waveform is symmetrical about  $I$ , and hence during the first subinterval the current increases by  $2\Delta i_L$ . (20%)
6. After observing the physical system, we need to identify the appropriate independent and dependent variables. Then we need to develop a mathematical description of how these variables interact. Often, a differential equation (along with appropriate initial conditions) will serve as a mathematical description of the system. (15%)

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