

國立台灣科技大學九十六學年度碩博士在職專班招生試題

系所組別：電子工程系碩士在職專班、高職教師組

科目：電子科技英文

總分100分，所有答案必須寫於答案卷上，寫於試題者不予計分。

1. In the following paragraph, fill in the blanks with the words listed below: (20%)

<i>careful</i>	<i>networks</i>
<i>high-capacity</i>	<i>component</i>
<i>properly</i>	<i>available</i>
<i>range</i>	<i>maintenance</i>
<i>transactions</i>	<i>importance</i>

Modern _____ (a) _____ telecommunication _____ (b) _____ based on optical fiber technology now have become an integral and indispensable part of society.

Applications for these sophisticated networks _____ (c) _____ from simple web browsing and e-mail exchanges to critical health-care diagnoses and complex business _____ (d) _____. Due to the _____ (e) _____ of these networks to everyday life, users have come to expect the communication services to always be _____ (f) _____ and to function _____ (g) _____. Meeting such a stringent demand requires _____ (h) _____ engineering in all technological aspects ranging from _____ (i) _____ development to system design and installation to network operation and _____ (j) _____.

2. Spell out the full English expression for each of the following acronyms: (10%)

(a) FTTH (b) LCD (c) BER (d) WDM (e) LED

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3. The following is a paragraph describing the growing demand for higher-speed communication links. The underlined words are incorrect. Please correct them and put all the answers on the answer sheet. (20%)

The emergence World Wide Web (commonly know as the Web) at the 1990s great changed the fundamental nature of network design and usage. Before that time the main focus of network providers was to increase the utilize of long-haul telephone links by multiplex many low-speed users onto high-speed large-capacity fiber optic links. Telephone companies have spend large sums of money to build out such networks up to a local distribution point. Beyond that point the connections to the customer premises were lower-speed copper wires. The cable system who interconnects the user sites and the global network is called the access network. The cost of the large-capacity long-haul networks, which requires the installation of expensive sophisticate switching equipment, is spread out over a large number of users, so the relative cost per service subscriber are low. Several competing broadband wire-line and wireless telecommunication technologies are address the demand for faster access links.

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4. Translate the following paragraph into Chinese (20%)

Many physical phenomena are found experimentally to share the basic property that their response to several stimuli acting simultaneously is identically equal to the sum of the responses that each component stimulus would produce individually. Such phenomena are called *linear*, and the property they share is called *linearity*. Electrical networks composed of resistors, capacitors, and inductors are usually linear over a wide range of inputs. In addition, as we shall soon see, the wave equation describing the propagation of light through most media leads us naturally to regard optical imaging operations as linear mappings of “object” light distributions into “image” light distributions.

5. Translate the following paragraph into English (30%)

在低溫時候，原子傾向處於基態；在溫度逐步昇高時，越來越多的原子會經由原子碰撞成爲受激態。此類的機制表示了相對溫和的激發族群 – 弧光燈，火燄，火花等等 – 一些僅激發外圍未成對的共價電子。我們一開始會專注於這些外圍電子的轉移，這過程會放射出光，以及鄰近的紅外光與紫外光。當足夠的能量傳到一個原子上時候（特別是共價電子），不管發生的原因爲何，該原子會突然從低能階升到高能階。這電子會產生非常快速的轉換，稱爲量子跳躍，從基態的軌道組態到一個完整描述的受激態，一個能量階梯上量化的橫桿。通常，此過程中所產出的能量相等於初始狀態與最後狀態的能量差，而且由於此差異已被明確定義，因此能被原子吸收的能量也呈現量化狀態（就是，限定於特別的量）。