

# 國立臺灣師範大學 103 學年度碩士班招生考試試題

科目：英文（專門科目）

適用系所：工業教育學系

注意：1.本試題共 4 頁，請依序在答案卷上作答，並標明題號，不必抄題。2.答案必須寫在指定作答區內，否則不予計分。

1. Please translate the following paragraph from a recent technology news article from Chinese to English. (20 分)

聯想雖然是中國地區的領導品牌，但為了提昇其他區域的市場佔有率以及品牌認同，還是需要透過併購其他公司的相關事業部來實現。例如，在個人電腦領域中，聯想透過併購 IBM 及 NEC 之相關事業，拓展歐洲、美國、以及日本市場，並成功於兩年間一躍成為能與 HP 爭奪全球出貨量第一的主要競爭者。

此併購策略同時也被複製在聯想於伺服器以及智慧型手機市場之擴張。透過收購 IBM 的伺服器部門，聯想得以跳過漫長的學習過程，直接由低階伺服器市場向中高階伺服器市場邁進。而在智慧型手機市場中，聯想透過併購 Motorola 的手機部門提昇其市場佔有率。雖然 Motorola 在手機市場的影響力已經式微，短期內，此併購案對聯想手機的出貨量影響非常有限，但就長遠而言，歐美市場對 Motorola 的品牌認同將對聯想手機出貨量的提升產生正面效益；而聯想在中國等新興市場的佔有率，勢必也將因為整合 Motorola 手機部門的資源與品牌效益而大幅提昇。

Source: Modified from [technews.tw/2014/01/30/lenovo-acquire-moto-analysis](http://technews.tw/2014/01/30/lenovo-acquire-moto-analysis)

2. (a) Please translate the following introduction to the classical linear regression model from English to Chinese. (20 分). (b) Please explain the mathematical

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meanings of the following two equations,  $\text{Var}(\varepsilon_j) = \sigma^2$  and  $\text{Cov}(\varepsilon_j, \varepsilon_k) = 0$ , by Chinese (10 分).

## The Classical Linear Regression Model

Let  $z_1, \dots, z_r$  be  $r$  predictor variables thought to be related to a response variable  $Y$ . For example, with  $r = 4$ , we might have

$Y$  = current market value of home

and

$z_1$  = square feet of living area

$z_2$  = location (indicator for zone of city)

$z_3$  = appraised value last year

$z_4$  = quality of construction (price per square foot)

The classical linear regression model states that  $Y$  is composed of a mean, which depends in a continuous manner on the  $z_i$ 's, and a random error  $\varepsilon$ , which accounts for measurement error and the effects of other variables not explicitly considered in the model. The values of the predictor variables recorded from the experiment or set by the investigator are treated as fixed. The error (and hence the response) is viewed as a random variable whose behavior is characterized by a set of distributional assumptions.

Specifically, the linear regression model with a single response takes the form

$$Y = \beta_0 + \beta_1 z_1 + \dots + \beta_r z_r + \varepsilon$$

$$[\text{Response}] = [\text{mean (depending on } z_1, z_2, \dots, z_r \text{)}] + [\text{error}]$$

The term "linear" refers to the fact that the mean is a linear function of the

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un-known parameters  $\beta_1, \beta_2, \dots, \beta_r$ . The predictor variables may or may not enter the model as first-order terms.

With  $n$  independent observations on  $Y$  and the associated value of  $z_1$ , the complete model becomes

$$\begin{aligned} Y_1 &= \beta_0 + \beta_1 z_{11} + \dots + \beta_r z_{1r} + \varepsilon_1 \\ Y_2 &= \beta_0 + \beta_1 z_{21} + \dots + \beta_r z_{2r} + \varepsilon_2 \\ &\vdots \\ Y_n &= \beta_0 + \beta_1 z_{n1} + \dots + \beta_r z_{nr} + \varepsilon_n \end{aligned} \quad (1)$$

where the error terms are assumed to have the following properties:

1.  $E(\varepsilon_j) = 0$ ;
  2.  $\text{Var}(\varepsilon_j) = \sigma^2$  (constant); and
  3.  $\text{Cov}(\varepsilon_j, \varepsilon_k) = 0, j \neq k$ .
- (2)

Source: Johnson and Wichern (2006)

以下 3~7 題:以英文出題，中文作答。

3. What is your career strategy for the next five years? To what extent does your strategy fit with your long-term goals, the characteristics of the external environment, and your own strengths and weaknesses? (10 分)
4. You are the CEO of the second largest firm in your industry. In the middle of a price war, the industry leader has announced a price increase. How are you going to react? (10 分)
5. Consider an industry facing fundamental technology change. Develop a scenario for the future evolution of your chosen industry. In relation to one leading player in the industry, please identify the problems posed by the new technology and develop strategy for how the company might adapt to the changes. (10 分)

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6. Given that most entrepreneurial star-ups fail, why do entrepreneurs found so many new firms? Why are most governments interested in promoting more star-ups? (10 分)
7. Why would a firm that has a well-defined strategy perform better than a firm without one? (10 分)