

國立臺北護理學院九十九學年度碩士班招生
健康事業管理系碩士班
暨旅遊健康所(選考)
統計學試題

注 意	1.本試題共有 3 頁。 2.請用中文或英文作答。 3.請標明題號依序於答案卷上作答。
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I. Multiple choices, single response questions:

1. Which of the following is the best choice? (10%)

- (A) The probability distribution of sex can be summarized by a stem-and-leaf display.
- (B) The probability distribution of continuous body mass index (kg/m^2) can be summarized by a box-and-whisker plot.
- (C) The probability distribution of educated years (0~24 years) can be summarized by a pie chart.
- (D) The probability distribution of continuous weight (kg) can be summarized by a bar chart.

2. Which is true regarding an estimate? (10%)

- (A) A parameter is an estimate.
- (B) A descriptive measure is not an estimate.
- (C) A mean is an estimate.
- (D) A statistic is an estimate.

3. In one hospital R, a sample of 200 hospital emergency admissions with a certain diagnosis, 150 listed vomiting as a presenting symptom; in the other hospital S, a sample of 250 hospital emergency admissions, 150 listed vomiting. Researchers wish to know if they may conclude from these data that proportions of vomiting are different in two hospitals. Which of the following is not appropriate? (10%)
- (A) Researchers can apply a Z test.
 - (B) Researchers can apply a chi-square test.
 - (C) Researchers can apply a simple linear regression analysis.
 - (D) Null hypothesis H_0 : proportions of vomiting are not different in two hospitals.
4. Which is true concerning an assumption of the hypothesis testing? (10%)
- (A) A parameter is an assumption.
 - (B) A null hypothesis is an assumption.
 - (C) The independence of the data may be an assumption.
 - (D) All of the above.
5. For the situation of null hypothesis,
- “ H_0 : New education training is not more effective than the traditional one.”
- identify the type I error: (10%)
- (A) Adopt the new education training when the new one is not more effective.
 - (B) Continue with the traditional education training when the new one is more effective.
 - (C) Adopt the new education training when the new one is more effective.
 - (D) Continue with the traditional education training when the new one is not more effective.

II. Explain what is meant by

1. 90% confidence interval for population mean μ : (10%)
2. Probability of type II error (β): (10%)

- III. The scores (points) for the groups of the education training A and B are listed from sample data in the following table. Researchers wish to know if they may conclude from these data that the mean score of the education training B is higher than that of the education training A. There is no reason to assume the underlying population variances are identical.

The education training						t	p (two-tailed)
A			B				
n	Mean score	Standard deviation	n	Mean score	Standard deviation		
20	81.9	8.3	16	85.6	4.0	-1.7	0.09

1. Researchers can apply the two-sample t test with these data (degree of freedom = 29). Please list the appropriate assumptions of this example. (10%)
2. What are the null and alternative hypotheses of the one-tailed test? (10%)
3. Let probability of type I error be 0.05. What is the statistical decision? What is your conclusion? You must indicate appropriate p value. (10%)