

國立臺北科技大學

九十四學年度技術及職業教育研究所博士班入學考試

教育研究法與統計試題

填 准 考 證 號 碼

第一頁 共一頁

--	--	--	--	--	--	--	--

注意事項：

1. 本試題共分兩部分，第一部分為教育研究法，第二部分為統計，配分共 100 分。
2. 請按順序標明題號用中文或英文作答，不必抄題。第二部分另起頁作答。
3. 全部答案均須答在答案卷之答案欄內，否則不予計分。

第一部分：教育研究法

- I. Please propose some specific ways of integrating qualitative and quantitative research methods? (10%)
- II. Mary wants to explore the teachers' participation in school-based curriculum development of vocational high schools in Taiwan. Please write out the purposes of the research and describe the research method for her. (10%)
- III. Please explain the difference between research question and research hypothesis? (10%)
- IV. Developing a valid and reliable questionnaire is important. How to establish the validity and reliability of a questionnaire? Please elaborate. (10%)
- V. Please compare the following four kinds of sample methods: stratified random sampling, systematic sampling, cluster sampling, and quota sampling. (10%)

第二部分：統計

- The length of horse pregnancies from conception to birth varies according to a roughly normal distribution with mean 336 days and standard deviation 3 days. Use the 68-95-99.7 rule to answer the following question. Almost all (99.7%) of horse pregnancies fall in what range of lengths? (5%)
- A 95% confidence interval for a population mean is (28, 35). Can you reject the null hypothesis that $\mu=34$ at the 5% significance level? Why? (5%)
- Part of the ANOVA table appears below:

Source	Degrees of freedom	Sum of squares	Mean squares	F
Groups	3		158.96	
Error	32		62.81	
Total				

- Fill in the missing entries in the ANOVA table. (15%)
 - What is the estimate of the within-group variance? (5%)
- After choosing students in grades 9 to 12 at random and asking if they are studying a language other than English, we obtain the distribution of results:

Language	Spanish	French	German	All others	None
Probability	0.26	0.09	0.03	0.03	0.59

- Explain why this is a legitimate probability model. (5%)
 - What is the probability that a randomly chosen student is studying language other than English? (5%)
- Explain the following terms.
 - partial correlation (5%)
 - Kendall coefficient of concordance (5%)