國立雲林科技大學資訊管理系 114 學年度 第 1 學期博士班資格考

科目：Quantitative Methods for Management

時間：~~4 hour~~s (Closed book) 作答時，請注意各題之比例配分，並清楚標示題號
3.5 hours

●You can answer each question in Mandarin or English.

Part I (50%)

1. **What is common method bias (CMB)? (5%)**
   - ● Provide its definition and explain its characteristics.
2. **Why does CMB occur, and why is it a critical issue in research? (10%)**
   - ● Elaborate the reason(s).
   - ● Explain its impact on a study's validity and on statistical inference.
3. **How does the marker variable technique detect CMB? (10%)**
   - ● Explain the key principles behind this technique.
   - ● Describe how researchers implement it.
4. **What is non-response bias? (5%)**
   - ● Provide its definition and explain its characteristics.
5. **How can researchers detect non-response bias? (10%)**
   - ● Indicate the methods that could be used to detect this bias.
   - ● Describe how researchers apply them.
6. **How can researchers correct non-response bias? (10%)**
   - ● Describe the methods researchers use to prevent non-response bias occurrence during the survey.
   - ● Then explain post-survey statistical methods employed to adjust this bias.

Part II (50%)

1. **Explain the concept and testing procedure of measurement invariance in multi-group confirmatory factor analysis (MG-CFA). Discuss the implications of failing to establish scalar invariance. (10%)**
2. **A researcher conducted a MG-CFA across three cultural groups. The**

configural and metric invariance models were acceptable, but the scalar model showed poor fit. Propose and justify two advanced strategies to proceed with group comparisons. (10%)

3. **Compare and contrast the use of the ΔCFI, RMSEA, and chi-square difference test in assessing invariance across nested models. Which would you recommend and why? (5%)**

4. **Given the following structural equation model results from two groups, test whether the mediation effect is invariant. What steps would you take? (5%)**

   Group 1: X → M (.5, p<.001), M → Y (.4, p<.001)
   Group 2: X → M (.3, p<.05), M → Y (.2, p=.07)

5. **Explain the theoretical distinction between moderation and mediation. Provide an example where both occur in the same SEM framework. (10%)**
6. **Design a structural model where a moderator and a mediator are included. Explain how you would test both effects using SEM. Include model estimation and comparison techniques. (10%)**