

中山醫學大學 101 學年度碩士班入學招生考試試題

心理學系臨床心理學碩士班

考試科目：心理與教育統計學、心理測驗學、心理實驗法 時間：80 分鐘

※請注意本試題共(3)張，如發現頁數不足，應當場請求補齊，否則缺頁部份概以零分計算。 第 (1) 頁

本試題共兩大題，總分 100 分。

一、選擇題：(每題 4 分)(60%)

1. 下列敘述何者為真？

(A) 試題反應理論是一種現代測驗理論，較古典測驗理論容易了解 (B) 古典測驗理論下的受試者真分數可以直接獲得 (C) 古典測驗理論中的信度定義公式中之真分數變異可以直接獲得 (D) 試題反應理論中的難度參數與能力參數的單位相同，可以進行比較。

2. 某甲收集了一份資料，受試者為憂鬱症患者及正常人，資料包含性別、受試者組別(憂鬱組及正常組)、憂鬱程度、學業成績、社會支持程度等變項，以下敘述何者有誤？

(A) 若想瞭解性別與憂鬱程度的關係，可以利用二系列相關 (B) 若想了解憂鬱程度是否有區辨受試者組別的效果，可以使用 logistic Regression (C) 若想在排除憂鬱程度的影響後，了解性別在社會支持程度上的差異，可利用共變數分析 (D) 若想了解性別、學業成績、社會支持對憂鬱程度的影響效果，可以利用多元迴歸分析。

3. 在一項具有四個水準的單因子的研究設計中，進行事前比較，以下比較係數的選擇何者不宜使用？

(A) (1, -1, 0, 0) (B) (0.5, 0.5, 0, -1) (C) (1/3, -1, 1/3, 1/3) (D) (1, 1, -1, 0)。

4. 下列概念，何者為誤？

(A) 統計考驗力通常會隨著樣本人數增加而上升 (B) 在自由度 1 的卡方分配中，卡方值小於 1 的機率超過 50% (C) 因為自由度為 1 時， $F=t^2$ ，可推論自由度為 2 時， $F=2t^2$ (D) 無論虛無假設是否成立，單因子獨立樣本設計 ANOVA 分析中的樣本組內變異數估計值都是母群變異數的不偏估計值。

5. 某校停車場每分鐘有 10 輛車進出，某甲想了解 10 分鐘內有 50、60、70 輛車進出的機率為何，應該參考下列何種機率分佈較佳？

(A) 卡方分佈 (B) 波氏分佈 (C) 負二項式分佈 (D) 超幾何分佈

6. A researcher tests 4 different groups of participants. Each group is given a different dosage of caffeine, and reaction time is measured for each subject. Which of the following is true?

(A) dosage level is the dependent variable (B) reaction time is an independent variable (C) the independent variable has four levels (D) the independent variable is a subject variable

7. In general, all experiments include

(A) a control group that does not receive the experimental treatment (B) an attempt to control potentially confounding variables (C) subject variables (D) a minimum of two independent variables

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8. A researcher finds that in a study of direction finding, males are less likely to acknowledge being lost than females. In this study, the independent variable is
(A) whether or not participants get lost (B) a willingness to admit being lost (C) a subject variable (D) a manipulated variable
9. In a study comparing two sets of rankings, a researcher erroneously uses a statistical analysis designed for use with interval or ratio data. This study will have questionable
(A) internal validity (B) construct validity (C) statistical conclusion validity (D) reliability
10. Between the administration of a pretest and a posttest, normal developmental changes may occur that can affect the results of the study independent of the treatment program being evaluated. This threat to internal validity is called
(A) history (B) regression (C) testing (D) maturation
11. Demand characteristics are more likely to be found in
(A) between-subjects designs rather than within-subjects designs (B) within-subjects designs rather than between-subjects designs (C) studies with animal subjects than studies with human subjects (D) cross-sectional rather than longitudinal studies
12. In a study with three conditions in which participants are tested in each condition more than once, reverse counterbalancing would produce which of the following sequences?
(A) ACCBAB (B) ABCCBA (C) CABBCA (D) ABCABC
13. When used as a counterbalancing procedure, block randomization insures
(A) an equal number of participants per condition (B) that each condition is tested before any condition is retested (C) that each possible sequence of conditions is used (D) equivalent groups
14. If a 1-way ANOVA has been completed in a single factor study, you can be sure that
(A) multiple t tests have already been completed first (B) the design involves repeated measures (C) post hoc testing will occur if the ANOVA is significant (D) the independent variable has at least five levels
15. In a 3x3 factorial design, how many different F ratios will be calculated in the ANOVA?
(A) 2 (B) 4 (C) 9 (D) 3

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二、問答題：(40%)

1. In statistical practice, when you want to understand difference of certain dependent variable between two groups (levels) of an independent variable, in what situation that you use t test rather than z test? Write more as possible as you can (7%)
2. In making up a psychological testing (scale) for clinical practice, you want to decide a cutoff point of the scale to find out potential patients (such as depression patients). What are your considerations in this process? Write more as possible as you can (13%)
3. Here is a study about duration of cure for inpatients of different diseases. Please answer following questions based on the table. (20%)

Tests of Between-Subjects Effects

Dependent Variable: days

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	42.667 ^a	2	21.333	9.600	.006
Intercept	901.333	1	901.333	405.600	.000
group	42.667	2	21.333	9.600	.006
Error	20.000	9	2.222		
Total	964.000	12			
Corrected Total	62.667	11			

a. R Squared = .681 (Adjusted R Squared = .610)

- (1) What kind of statistical analysis method was used? (3%)
- (2) How many groups and inpatients were analyzed in the study? (3%)
- (3) In the model what was meaningful systematic variance source? (4%)
- (4) Why did "Intercept" present in the Table and what did it mean? Write more as possible as you can (5%)
- (5) Make a decision for the study based on the Table. Write more as possible as you can (5%)