

# 中山醫學大學 100 學年度碩士班入學招生考試試題

## 醫療產業科技管理學系碩士班

考試科目：統計學

時間：80 分鐘

※請注意本試題共( 1 )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

本試題共一大題，總分 100 分。

(本科目可攜帶依考選部核定通過

一、問答題：(請以中文回答)(100%)

之國家考試計算器)

1. Please define selection bias in a study, and give an example. (10%)
2. What is the concern when we decide to choose either linear regression or logistic regression to analyze our data? (10%)
3. What types of covariates can be included in a logistic regression model? (10%)
4. Please explain the data type of the following variables: (20%)
  - (1) Weight (kg)
  - (2) Smoking (Y/N)
  - (3) Blood type (A, B, AB, O)
  - (4) Drinking (never, light, heavy)
  - (5) Diabetes Mellitus (Y/N)
5. Please write out what kind of univariate analysis will be used to describe the following variables: (10%)
  - (1) Height(cm)
  - (2) Exercise (never, regular, intensive)
6. Here is a result from a multiple linear regression, when regressing weight (kg) on height (cm) and age (years) for a sample of 360 adults with DM (diabetes mellitus). (20%)

The regression equation is:

$$y = 54 + 1.6x_1 + 0.8x_2$$

Where  $y$  = mean weight  
 $x_1$  = age  
 $x_2$  = height

  - (1) Please interpret the coefficient for age.
  - (2) Please interpret the coefficient for height.
7. Please explain the following questions: (20%)
  - (1) What is ANOVA
  - (2) When ANOVA is an appropriate test?
  - (3) What ANOVA is testing?
  - (4) How the ANOVA test is carried out?