

系所組別：老年學研究所乙、丙組

考試科目：流行病學與研究設計

考試日期：0226，節次：3

請勿在本試題紙上作答，否則不予計分

一、選擇題：(30 分，每題 5 分)

1. Which of the following best describes the retrospective design where subjects are sampled by disease status and is often used when the investigator is interested in rare diseases.
 - A. intervention trial
 - B. case control study
 - C. retrospective cohort
 - D. ecologic study
 - E. none of the above

2. Which of the following best describes the study design that can be either retrospective or prospective and is often used when the investigators are interested in rare exposures.
 - A. intervention trials
 - B. cohort studies
 - C. prevalence studies
 - D. case control study
 - E. none of the above

3. The strength of an association is one of the criteria for evaluating the cause and effect relationship between an exposure and outcome. Which of the following is a measure of the strength of association? (Choose one best answer).
 - A. incidence rate among the exposed
 - B. cumulative incidence among the exposed
 - C. the ratio of odds of exposure among cases to the odds of exposure among the non-cases
 - D. odds of disease among exposed relative to the prevalence of exposure in the source population
 - E. none of the above

4. In a diet and bowel disease case control study, dietary exposures were assessed using a questionnaire with retrospective questions aimed at a period of time 5 years in the past. Which of the following situations of misclassification would make sucrose appear more harmful than it really was? (Choose one best answer)
 - A. Controls underreported sucrose intake but cases did not.
 - B. Cases underreported sucrose intake but controls did not.
 - C. Both cases and controls underreported sucrose intake.
 - D. Both cases and controls over-report sucrose intake.

5. Which of the following best describes what information a confidence interval conveys that a p-value does not. (Choose one best answer)
 - A. A confidence interval puts the observed point estimate in the context of randomness.
 - B. A confidence interval provides information on the precision of the point estimate.
 - C. A confidence interval includes an estimate of the statistical power of the study.
 - D. A confidence interval reflects the clinical significance of the point estimate.

(背面仍有題目,請繼續作答)

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6. For each of the following epidemiological measures, indicate whether it is a rate, a proportion or that it is neither a rate nor a proportion. choose and write the best answer. (1.25 pt each)

a. Population attributable risk	RATE	PROPORTION	NEITHER
b. Incidence density (ID)	RATE	PROPORTION	NEITHER
c. Prevalence	RATE	PROPORTION	NEITHER
d. Relative risk	RATE	PROPORTION	NEITHER

二、是非題：(40 分，每題 4 分)

1. A disadvantage of the cohort design compared to a case control study design is that in a cohort study one cannot address multiple outcomes.
2. Ecological studies cannot directly assess causal inference because they measure disease and exposure in a person at the same point in time.
3. Cross-sectional studies are limited by their lack of generalizability, but are powerful in that they directly measure risk.
4. A correlation coefficient measures the degree of linear or monotonic relationship between two variables and is therefore suitable for determining the epidemiologic strength of association between them.
5. As an estimate of a relative risk, an odds ratio is a measure of association that can be used to determine the magnitude of an association between exposure and an outcome.
6. Case control studies have several crucial advantages that relate to their efficiency for studying rare conditions and those with prolonged induction and their efficiency in examining many exposure and outcomes
7. Incidence density is a proportion where the units of time are specified.
8. A "J" or "U" shaped relationship of a continuous risk factor and continuous measure of disease suggests a Pearson product-moment correlation coefficient of near plus one or minus one.
9. A risk ratio measure and a correlation coefficient are both measures of association
10. A population attributable risk proportion depends on the prevalence of exposure and is not directly related to the strength of an association

三、簡答題：(30 分)

1. Over a ten-year period the number of bicycle injury events in a population increases even as the age adjusted bicycle injury rate decreases in the population. Describe two conditions that could cause this outcome (assume the definition of a bicycle injury and the quality of the data remain constant over the 10 year period)(5pt)
2. Incidence rates of a disease are often referred to as direct measures of risk. Can incidence rates be calculated from case-control studies? Briefly explain in 1-2 sentences why they can or can not be calculated. (5 pts)
3. Define validity and compare and contrast this concept with reliability. (5 pts)
4. The following stratified analysis has been constructed to illustrate a situation where cohort effects with regard to breastfeeding completely obscure a true protective association between breast milk and risk of breast cancer when age is controlled.

	Age < 60		Age > 60		Total	
	Breastfed	Bottlefed	Breastfed	Bottlefed	Breastfed	Bottlefed
Cases	24	40	256	100	280	140
Controls	79	86	204	54	280	140
OR	0.653		0.678		1.0	

Based on these hypothetical data:

- a. demonstrate that there is a cohort effect for breastfeeding, (5 pts)
- b. briefly explain how failure to adjust for age interferes with finding a protective effect of breastfeeding. (10 pts)