

※ 考生請注意：本試題不可使用計算機。

請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

一、選擇題 (每題 3 分，共 30 分)

1. A hypothesis is:

- (A) a theory
- (B) a law
- (C) an educated guess
- (D) a rule

2. Which one of the following coefficients indicates the strongest relationship between two variables while remaining within the possible range of correct calculations?

- (A) -2.78
- (B) +4.50
- (C) 0.00
- (D) -0.83

3. A research study where the cause-effect conclusions are accurate, and there are no other possible explanations for the results, has a high level of _____ validity.

- (A) population
- (B) external
- (C) ecological
- (D) internal

4. Benjamin gives his subjects a survey to complete. Which type of psychological tool is Benjamin using?

- (A) Laboratory Observation
- (B) Psychological Measurement
- (C) Experiment
- (D) Naturalistic Observation

5. Researchers who study older adults by tracing their footsteps and recording the amount of time an older adult spends outdoors are conducting _____ studies.

- (A) survey
- (B) interviewing
- (C) observation
- (D) focus groups
- (E) empathic

6. Which of the following is a requirement for a deduction to be considered correct?
- (A) Validity
 - (B) Reliability
 - (C) Inference
 - (D) Empiricism
7. In a case control study, examining fat consumption as a risk factor for pancreatic cancer, dietary exposures were assessed using a questionnaire with retrospective questions aimed at a period of time 1 years in the past. Which of the following situations of misclassification would make fat appear less harmful than it really was? (Choose one best answer)
- (A) Cases underreported fat intake but controls did not.
 - (B) Controls underreported fat intake but cases did not.
 - (C) Both cases and controls underreported sucrose intake.
 - (D) Both cases and controls over-report sucrose intake. E. None of the above
8. What is the correct order in classic model of scientific research steps
- (1) Conduct the study (& collect the data)
 - (2) Begin with theory
 - (3) Deduce testable hypothesis from theory
 - (4) Design study & operationalize concepts
 - (5) Support, modify, or reject initial theory
 - (6) Analyze the data to accept/reject the hypothesis
- (A) 243165 (B) 234165 (C) 324165 (D) 231465
9. _____ refers to how well the study results generalize to the overall population:
- (A) external validity
 - (B) internal validity
 - (C) content validity
 - (D) face validity
 - (E) internal reliability
10. A retrospective study predicting the disability score with multiple regression, and found the coefficient of gender is 2.98 (95%CI=1.89-4.11). It claims that women were more likely to have disability then men.
- (A) Correct, and means that being women had an average of 2.98 more disability score then men.
 - (B) Incorrect, mainly because there is no comparison group
 - (C) Correct, because prevalence rates are used where incidence rates are needed
 - (D) Incorrect, mainly because of failure to achieve a high level of statistical significance

二、配對題 (每題 3 分，共 60 分)

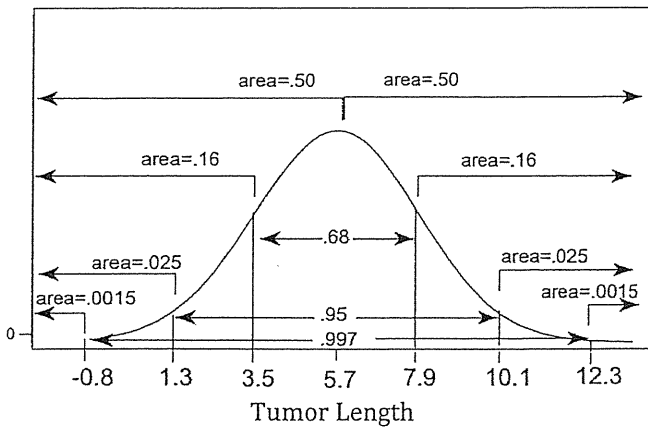
1. The test covers the content it set out to test
2. Smaller collection of units used to determine truths
3. Discrepancy between actual value and number being used to measure it
4. Proposed cause and predictor variable
5. Proposed effect and outcome variable
6. There is no effect - $H(0)$
7. There is some effect - $H(1)$
8. Difference between the mean and actual data point
9. Square deviations to stop + and - cancelling out each other
10. Variables eg gender, hair colour
11. If the p value is less than this number it is significant
12. Each person in the population has an equal chance of being chosen for the sample
13. Dividing population into groups, and taking samples from these eg geographic areas
14. samples that don't stem from a random choice
15. Square root value of the variance
16. Data on graph grouped relatively close together
17. Bell Curve
18. To measure the direction and the strength of the linear association between two numerical paired variables we use
19. Perfect positive linear relationship
20. No linear relationship

A	Pearson's R	H	Sum of squared errors	O	Normal distribution
B	Small Standard Deviation	I	1	P	Deviation
C	Cluster sampling	J	0	Q	Dependent variable
D	Null Hypothesis	K	Alternative hypothesis	R	Categorical
E	Measurement error	L	Content validity	S	Probability sample
F	Sample	M	0.05	T	Independent variable
G	Standard Deviation	N	Non-probability sampling		

(下頁還有題目)

三、題組題 (每小題 2 分，共 10 分)

1. This graph shows the distribution of tumor lengths (in centimeters), based on mean and standard deviation and the 68-95-99.7 Rule:



- (1) Which of these is your best guess for the probability of being less than 4 centimeters?
 (A) .02 (B) .12 (C) .22
- (2) Which of these is your best guess for the length that has 5% of all values below it?
 (A) 2.1 (B) 4.1 (C) 6.1

2. Based on the data below, we want to determine if a sample of 13 older adults with cognitive impairment tended to be more successful when tested after meal, compared to control conditions before meal was provided.

After meal	13	10.923	2.691	0.746
Before meal	13	9.308	1.437	0.398
Difference	13	1.615	3.477	0.964

T-Test of mean difference = 0 (vs > 0): T-value = XXXXX P-Value = 0.053

- (1) The data arise from a (A) two-sample (B) paired design.
- (2) The t-statistic has been X-ed out. Based on the size of the p-value, the t-statistic must be
 (A) large (B) not large (C) borderline
- (3) Would the sample difference have been more convincing if the sample size were much larger?
 (A) Yes (B) No (C) Cannot determined