

國立宜蘭大學
九十九學年度轉學招生考試

(考生填寫)
准考證號碼：

統計學試題

《作答注意事項》

1. 請先檢查准考證號碼、座位號碼及答案卷號碼是否相符。
2. 考試時間：80 分鐘。
3. 本試卷共有 20 題，一題 5 分，共計 100 分。
4. 請將答案寫在答案卷上。(限用藍或黑色鋼筆、原子筆作答)
5. 考試中禁止使用大哥大或其他通信設備。
6. 考試後，請將試題卷及答案卷一併繳交。
7. 本試卷採雙面影印，請勿漏答。
8. 電子計算機由本委員會提供。

1. In a questionnaire, respondents are asked to mark their gender as male or female. Gender is an example of the
(A)ordinal scale
(B)nominal scale
(C)ratio scale
(D)interval scale
(E)None of the above is correct.
2. The collection of all elements of interest in a particular study is
(A)the population
(B)the sampling
(C)statistical inference
(D)descriptive statistics
(E)None of the above is correct.

3. The numbers of hours worked (per week) by 400 statistics students are shown below.

Number of hours	Frequency
0 - 9	20
10 - 19	80
20 - 29	200
30 - 39	100

The class width for this distribution

- (A)is 9
(B)is 10
(C)is 39, which is: the largest value minus the smallest value or $39 - 0 = 39$
(D)varies from class to class
(E)None of the above is correct.
4. Assume normally distributed populations with equal variances.

	Sample 1	Sample 2
Sample Mean	45	42
Sample Variance	85	90
Sample Size	10	12

The 95% confidence interval for the difference between the two population means is
(A)-5.36 to 11.36 (B)-5 to 3 (C)-4.86 to 10.86 (D)-2.65 to 8.65 (E)None of the above is correct.
 5. The variance of a sample of 169 observations equals 576. The standard deviation of the sample equals
(A)13 (B)24 (C)576 (D)28,461 (E)None of the above is correct.
 6. If $P(A) = 0.4$, $P(B|A) = 0.35$, $P(A \cup B) = 0.69$, then $P(B) =$
(A)0.14 (B)0.43 (C)0.75 (D)0.59 (E)None of the above is correct.
 7. A sample of 41 observations yielded a sample standard deviation of 5. If we want to test $H_0: \sigma^2 = 20$, the test statistic is
(A)100 (B)10 (C)51.25 (D)50 (E)None of the above is correct.
 8. For any continuous random variable, the probability that the random variable takes on exactly a specific value is
(A)1.00 (B)0.50 (C)any value between 0 to 1 (D)almost zero (E)None of the above is correct.

9. Consider a binomial probability experiment with $n = 3$ and $p = 0.1$. Then, the probability of $x = 0$ is
(A)0.0000
(B)0.0001
(C)0.001
(D)0.729
(E)None of the above is correct.
10. In computing the standard error of the mean, the finite population correction factor is used when
(A) $N/n > 0.05$
(B) $N/n \leq 0.05$
(C) $n/N > 0.05$
(D) $n/N \leq 30$
(E)None of the above is correct.
11. A simple random sample of 100 observations was taken from a large population. The sample mean and the standard deviation were determined to be 80 and 12 respectively. The standard error of the mean is
(A)1.20 (B)0.12 (C)8.00 (D)0.80 (E)None of the above is correct.
12. In hypothesis testing if the null hypothesis is rejected,
(A)no conclusions can be drawn from the test
(B)the alternative hypothesis is true
(C)the data must have been accumulated incorrectly
(D)the sample size has been too small
(E)None of the above is correct.
13. Your investment executive claims that the average yearly rate of return on the stocks she recommends is at least 10.0%. You plan on taking a sample to test her claim. The correct set of hypotheses is
(A) $H_0: \mu < 10.0\%$ $H_a: \mu \geq 10.0\%$
(B) $H_0: \mu \leq 10.0\%$ $H_a: \mu > 10.0\%$
(C) $H_0: \mu > 10.0\%$ $H_a: \mu \leq 10.0\%$
(D) $H_0: \mu \geq 10.0\%$ $H_a: \mu < 10.0\%$
(E)None of the above is correct.
- Exhibit 1** $SSTR = 6,750$ $SSE = 8,000$ $n_T = 20$
 $H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$ $H_a: \text{at least one mean is different}$
14. Refer to Exhibit 1. The mean square between treatments (MSTR) equals
(A)400 (B)500 (C)1,687.5 (D)2,250 (E)None of the above is correct.
15. Refer to Exhibit 1. The mean square within treatments (MSE) equals
(A)400 (B)500 (C)1,687.5 (D)2,250 (E)None of the above is correct.
16. Refer to Exhibit 1. The test statistic to test the null hypothesis equals
(A)0.22 (B)0.84 (C)4.22 (D)4.5 (E)None of the above is correct.

Exhibit 2

y Dependent Variable	x Independent Variable
11	4
0	6
7	2
6	4

17. Refer to Exhibit 2. The least squares estimate of b_1 equals
(A)13 (B)37.5 (C)-1.75 (D)1.75 (E)None of the above is correct.
18. Refer to Exhibit 2. The least squares estimate of b_0 equals
(A)13 (B)37.5 (C)-1.75 (D)1.75 (E)None of the above is correct.
19. Refer to Exhibit 2. The sample correlation coefficient equals
(A)0.6286 (B)- 0.6286 (C)0.3951 (D)- 0.3951 (E)None of the above is correct.
20. Refer to Exhibit 2. The coefficient of determination equals
(A)0.6286 (B)- 0.6286 (C)0.3951 (D)- 0.3951 (E)None of the above is correct.