الاحتمالات والاحصاء
9:11
الاربعاء 23/6/2021
د/هانم مصطفى

Faculty of Computers & Information, Assiut University
2nd Level
Final Exam
Duration: 2 hours

1

الإسم الرباعي (بالعربي فقط) *

ماريا سامح الفونس قزمان

2

رقم الجلوس *

1620195209

3

المستوي *

- الاول
- الثاني
- الثالث
- رابعة 2013
- رابعة 2014
- رابعة 2015
- رابعة 2016
- رابعة 2017

4

البرنامج *

- عام
- بايو
- هندسة

5

رقم المعمل *

- ج•
- د•

- ١ب
- ١د
- ١هـ
- ٢أ
- ٢ب
- ٢ج
- ٢د
- ٢هـ
- ٣أ
- ٣ب
- ٣ج
- ٣د
- ٣هـ
- ٤أ
- ٤ب

6

رقم الكمبيوتر *

19

7

الكود (قد تمت مراجعة بيانات الطالب ورقم الجلوس) *

xb2M

8

If X is normally distributed then the sample mean is approximately normally distributed.
(2 Points)

- True
- False

9

(2 Points)

If you have $P(A)=0.9,\ P(B)=0.8, P(A\cap B)=0.75$, then $P($

- 0.95
- 0.1
- 0.05

10

Two groups each consisting of 100 people with a specific disease. A vaccine was given to the first group and not to the second group. Otherwise, the two groups were treated in a similar manner. If it was found that 75 people were cured from the first group, while 65 people were cured from the second group. To test the belief that the cure proportion in the group that used the serum was greater at a significant level of 5%, then the statistical hypothesis used are
(2 Points)

- $H_0: P_1 = P_2,\quad H_\alpha: P_1 > P_2$

- $H_0: P_1 = P_2, \quad H_\alpha: P_1 < P_2$
- $H_0: \mu_1 = \mu_2, \quad H_\alpha: \mu_1 > \mu_2$

11

(2 Points)

The following table is the probability distribution function of a discr
variable X, then the value of k is

X	0	1	3	4	6
$P(X = x)$	k	0.3	0.3	0.2	0.1

- 0.2
- 0.1
- 0.3

12

If an estimator provides a range of possible values of the relevant population parameter, it is
(2 Points)

- Point estimator
- Interval estimator
- Single estimator

13

(2 Points)

If X is a continuous random variable, then $P(X$

True

False

14

(2 Points)

If X has a binomial distribution with $n = 3$ and $p = 0.5$, then $P(1 < X <$

True

False

15

If has a binomial distribution, then the mean of X is n p (1-p)
(2 Points)

True

False

16

(2 Points)

If $A \subset B$, then $P(A / B) = P$

True

False

17

(2 Points)

If X has a binomial distribution, then $p(x) = \binom{n}{x}(p)^x(1-p)^{n-x}, \quad x$

True

False

18

By taking a level of significance of 5% it is the same as saying that we are 95% confident that the results have not occurred by chance.
(2 Points)

True

False

19

(2 Points)

If you have $P(A) = 0.9,\ P(B) = 0.8, P(A \cap B) = 0.75$, then $P($

0.2

0.25

0.75

20

The standard deviation is the positive square root of the variance.
(2 Points)

- True
- False

21

(2 Points)

If you have the probabilities in the following table and Bayes theorem, then $P($

A_i	$P(A_i)$	$P(B \mid A_i)$
A_1	0.5	0.01
A_2	0.2	0.03
A_3	0.3	0.02

- 0.353
- 0.011
- 0.294

22

(2 Points)

If you have $P(A) = 0.9$, $P(B) = 0.8$, $P(A \cap B) = 0.75$, then $P(A$

- 0.55
- 0.8

0.05

23

(2 Points)

The following table is the probability distribution function of a discrete rand
X , then $P(X \geq 4)$ is

X	0	1	3	4	6
$P(X = x)$	k	0.3	0.3	0.2	0.1

0.9

0.1

0.3

24

(2 Points)

In t-distribution for two independent samples $n_1 = n_2 = n$, then the degrees of fre
to:

2n-1

2n-2

n-1

25

The accepting of a false hypothesis is called
(2 Points)

Type I error

Type II error

Standard error

26

(2 Points)

If the testing hypothesizes are $\mu = \mu_0$ against $\mu \neq \mu_0$, then we test the different population proportions.

True

False

27

(2 Points)

If you have $P(A)=0.9, P(B)=0.8, P(A \cap B)=0.75$, then

0.05

0.5

0

28

(2 Points)

If $X \sim N(\mu, \sigma^2)$, then $P(X \geq \mu)$

True

False

29

The standard error is
(2 Points)

- $S/\sqrt{n}$
- $(\overline{X})/n$
- S/n

30

Let Z be N (0, 1), then P (Z<0) =
(2 Points)

- 0
- 0.5
- 0.45

31

(2 Points)

If we have normal populations with known population standard deviations σ_1 a
confidence interval estimate for the difference between two population means (

- $(\overline{X_1} - \overline{X_2}) \pm Z_{1-\alpha/2}\ \sqrt{((\sigma_1^2)/n_1 + (\sigma_2^2)/n_2)}$
- $(\overline{X_1} - \overline{X_2}) \pm Z_{1-\alpha/2}\ \sqrt{((\sigma_1^2 + \sigma_2^2)/(n_1 + n_2))}$
- $(\overline{X_1} - \overline{X_2}) \pm Z_{1-\alpha/2}\ \sqrt{((\sigma_1^2 \sigma_2^2)/(n_1 n_2))}$

32

(2 Points)

Let Z be N (0, 1), and if you have $\varphi(2.35) = P(Z \leq 2.35) = 0.9906$ then P (Z

- 0.0312
- 0.0094
- 0.0143

33

Standard error is always non-negative.
(2 Points)

- True
- False

34

The rejecting of a true hypothesis is called
(2 Points)

- Type I error
- Type II error
- Standard error

35

A set of all possible outcomes of a random experiment is called a sample space
(2 Points)

- True
- False

36

Two groups each consisting of 100 people with a specific disease. A vaccine was given to the first group and not to the second group. Otherwise, the two groups were treated in a similar manner. If it was found that 75 people were cured from the first group, while 65 people were cured from the second group. To test the belief that the cure proportion in the group that used the serum was greater at a significant level of 5%, then the test function used is
(2 Points)

- $Z = (\bar{x_1} - \bar{x_2})/\sqrt{((\sigma_1^2)/n_1 + (\sigma_2^2)/n_2)}$
- $Z = (\hat{P_1} - \hat{P_2})/\sqrt{(\hat{P}\hat{q}(1/n_1 + 1/n_2))}$
- $t = (\bar{x_1} - \bar{x_2})/(S_p\sqrt{((1/n_1 + 1/n_2))})$

37

The width of the confidence interval decreases when the significance level (α) is increased.
(2 Points)

- True
- False

38

(2 Points)

If you have the probabilities in the following table and Bayes theorem, then .

A_i	$P(A_i)$	$P(B \mid A_i)$
A_1	0.5	0.01
A_2	0.2	0.03
A_3	0.3	0.02

- 0.017
- 0.006
- 0.005

39

The classical theory of statistical inference consists of
(2 Points)

- Averages and dispersion
- Regression and correlation
- Estimation and hypothesis testing

40

If the population standard deviation σ is known, and the sample size is small i.e.; n≤30, the confidence interval for the population mean μ is based on
(2 Points)

- The t-distribution

The standard normal distribution

The binomial distribution

41

(2 Points)

The following table is the probability distribution function of a discrete rand
X , then The mean of X " E(X)" is

X	0	1	3	4	6
$P(X = x)$	k	0.3	0.3	0.2	0.1

0

2.6

1

42

To create a 90% confidence interval to estimate the proportion for the group of 100 people with a
specific disease . A vaccine was given to them. If it was found that 75 people were cured , then the tabular value used to find the confidence interval is
(2 Points)

$Z_{0.95} = 1.65$

$t_{0.95,99} = 2.576$

$Z_{0.90} = 1.29$

43

Two groups each consisting of 100 people with a specific disease. A vaccine was given to the first group and not to the second group. Otherwise, the two groups were treated in a similar manner. If it was found that 75 people were cured from the first group, while 65 people were cured from the second group. To test the belief that the cure proportion in the group that used the serum was greater at a significant level of 5%, then the tabular value used for comparison with the test function is
(2 Points)

- $t_{(0.975,198)} = 1.96$
- $Z_{0.975} = 1.96$
- $Z_{0.95} = 1.65$

44

If an estimator provides only a single value of the relevant population parameter, it is
(2 Points)

- Point estimator
- Interval estimator
- Single estimator

45

To create a 90% confidence interval to estimate the proportion for the group of 100 people with a
specific disease . A vaccine was given to them. If it was found that 75 people were cured , then the appropriate confidence interval is
(2 Points)

- $\hat{p_1} \pm t_{(1-\alpha/2, n_1-1)} \left(\sqrt{((\hat{p_1}\hat{q_1})/n_1)}\right)$
- $\hat{p_1} \pm Z_{1-\alpha} \left(\sqrt{((\hat{p_1}\hat{q_1})/n_1)}\right)$
- $\hat{p_1} \pm Z_{1-\alpha/2} \left(\sqrt{((\hat{p_1}\hat{q_1})/n_1)}\right)$

46

(2 Points)

If you have the probabilities in the following table and Bayes theorem, then $P(A_3$

A_i	$P(A_i)$	$P(B \mid A_i)$
A_1	0.5	0.01
A_2	0.2	0.03
A_3	0.3	0.02

- 0.005
- 0.017
- 0.006

47

(2 Points)

Let Z be N (0, 1), and if you have $\boldsymbol{P(0 \le Z \le 1.23) = 0.3907, P(0 \le Z \le 2.3) = 0.4}$

P (-1.23 < Z < 2.30) =

- 0.88
- 0.6895
- 0.9788

48

(2 Points)

If A and B are two disjoint events,

- P(A∩B)=P(A)P(B)
- P(A∩B)=0
- P(A∪B)=0

49

The numerical value of a probability of an event P(.) lies between
(2 Points)

- -1 ≤P(.)≤ 1
- 0 ≤P(.)≤1
- -∞

50

If the population standard deviation σ is unknown and the sample size n is greater than 30, the confidence interval for the population mean μ is
(2 Points)

- $\bar{X} \pm Z_{1-\alpha/2} \quad (\sigma/\sqrt{n})$
- $\bar{X} \pm t_{(1-\alpha/2,n-1)} \quad (s/\sqrt{n})$
- $\bar{X} \pm Z_{1-\alpha/2} \quad (s/\sqrt{n})$

51

Rejection of the null hypothesis is a conclusive proof that the alternative hypothesis is true.
(2 Points)

- True
- False

52

Let Z be N (0, 1), then P (Z = 1.96) =
(2 Points)

- 0
- 0.975
- 0.5

53

(2 Points)

The following table is the probability distribution function of a discrete rand
X , then $P(1 \leq X \leq 4)$ is

X	0	1	3	4	6
$P(X = x)$	k	0.3	0.3	0.2	0.1

- 1
- 0.8
- 1.2

54

(2 Points)

If you have $P(A)=0.9$, $P(B)=0.8, P(A \cap B)=0.75$, then $P($

- 0.8
- 1
- 0.15

55

Consider a hypothesis H0 : μ= 5 against Ha : μ> 5 , then the test is
(2 Points)

- Right tailed test
- Left tailed test
- Two tailed test

56

(2 Points)

If the alternative hypothesis is $\mu \neq \mu_0$ and the population variance is kno
P_value equals

- $2P(Z \geq |Z_{Cal}|)$
- $P(Z \geq |Z_{Cal}|)$
- $2P(t \geq |t_{Cal}|)$

57

(2 Points)

For any two events A and B we must have $P(A \cup B) = P($

True

False