Unit 8 - Week 7

Assignment 7

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-18, 23:59 IST.

1) Consider testing for the mean μ of a normal population. Which of the following are simple hypothesis? ***1 point***

- $\mu > 0$
- $\mu \neq 0$
- $\mu = 0$
- $\mu < 0$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\mu = 0$

2) Which of the following statements are true? ***1 point***

- Rejecting the null at 5% level of significance implies rejection at 10% level
- Rejecting the null at 10% level of significance implies rejection at 5% level
- Rejecting the null at 5% level of significance is independent of rejection at 10% level
- For all continuous distributions the rejection regions are symmetric around the Mean

No, the answer is incorrect.
Score: 0
Accepted Answers:
Rejecting the null at 5% level of significance implies rejection at 10% level

3) The cancer rate in the US is 293 cases per 100000 population. A researcher investigating the cancer rate near power plants sampled 4300 residents living near power plants and found 21 cases of cancer. What test statistic will you compute to determine if the cancer rate of those living near power plants is significantly higher than the national rate? (symbols have their usual meanings) ***1 point***

- $\frac{\hat{p}-p}{\sqrt{\frac{p}{n}}}$
- $\frac{\hat{p}}{\sqrt{\frac{p(1-p)}{n}}}$
- $\frac{\hat{p}}{\sqrt{\frac{p}{n}}}$
- $\frac{\hat{p}-p}{\sqrt{\frac{p(1-p)}{n}}}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{\hat{p}-p}{\sqrt{\frac{p(1-p)}{n}}}$

4) Consider the case for estimating p for a Bernoulli distribution. The null hypothesis is $H_o: p = 0.5$. You toss the coin 10 times and accept H_o if you get 4, 5 or 6 heads. Find the level of the test ***1 point***

- 11/36
- 11/32
- 13/32
- 13/36

No, the answer is incorrect.
Score: 0
Accepted Answers:
11/32

5) Which of the following best describes the level of the test? ***1 point***

- Minimum tolerance for type I error
- Maximum tolerance for type I error
- Minimum tolerance for type II error
- Maximum tolerance for type II error

No, the answer is incorrect.
Score: 0
Accepted Answers:
Maximum tolerance for type I error

6) Consider a uniformly distributed random variable distributed as $U(0, \theta)$. Consider the following hypothesis. ***1 point***

$$H_o: \theta = 1, H_1: \theta = 2$$

If the critical region is given by $1 \leq x \leq 1.5$, find the level of the test

- 0.5
- 0.25
- 0
- 1

No, the answer is incorrect.
Score: 0
Accepted Answers:
0

7) For the above question (6), find the power of the test ***1 point***

- 0
- 0.5
- 0.25
- 1

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.25

8) Which test is used to compare the mean of two populations? ***1 point***

- Z-test
- t-test
- F-test
- χ^2-test

No, the answer is incorrect.
Score: 0
Accepted Answers:
Z-test
t-test

9) It is claimed that a vacuum cleaner consumes 46 kWh per year. A random sample of 12 homes indicates that vacuum cleaners consume an average of 42 kWh per year with (sample) standard deviation 11.9 kWh. We wish to find if at a 0.05 level of significance, this sample suggests that on the average vacuum cleaners consume less than 46 kWh per year. Assume the population to be normally distributed. Which of the following is/are CORRECT with regards to the statistic used and its value? ***0 points***

- $z = 1.16$
- $z = -1.16$
- $t = -1.16$
- $t = 1.16$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$t = 1.16$

10) A university conducted a survey of its recent graduates to collect demographic and health information for future planning purposes as well as to assess students' satisfaction with their undergraduate experiences. In response to a question on regular exercise, ***1 point***

- 60% of all graduates reported getting no regular exercise,
- 25% reported exercising sporadically
- 15% reported exercising regularly,

The next year the university launched a health promotion campaign on campus in an attempt to increase health behaviors among undergraduates. To evaluate the impact of the program, the university again surveyed graduates and asked the same questions. The survey was completed by 470 graduates and the following data were collected on the exercise question:

- No regular exercise: 255
- Sporadic exercise: 125
- Regular exercise: 90

Based on the data, the university wants to find if there is evidence of a shift in the distribution of responses to the exercise question following the implementation of the health promotion campaign on campus. Which of the following statements is/are TRUE for conducting this test?

- The university will have to conduct a χ^2 test with 2 dof
- The university will have to conduct a χ^2 test with 3 dof
- The university will have to conduct a t-test with 2 dof
- The university will have to conduct a t-test with 3 dof
- The value of the statistic is 8.46
- The value of the statistic is 4.23

No, the answer is incorrect.
Score: 0
Accepted Answers:
The university will have to conduct a χ^2 test with 2 dof
The value of the statistic is 8.46