

Question 1

Correct

Mark 1.50 out of 1.50

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The test statistic used in the “ test of independence” has a

Select one:

- a. t distribution
- b. Poisson distribution
- c. chi-squared distribution ✓
- d. normal distribution

The correct answer is: chi-squared distribution

Question **2**

Correct

Mark 1.50 out of
1.50

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The "test of independence" is always conducted as

Select one:

- a. an upper tail test ✓
- b. a lower tail test
- c. a one-tailed test or a two-tailed test depending on the case studied
- d. a two-tailed test

The correct answer is: an upper tail test

Question 3

Correct

Mark 1.50 out of 1.50

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In the past, 35% of the students at ABC University were in the Business College, 35% of the students were in the Liberal Arts College, and 30% of the students were in the Education College. To see whether or not the proportions have changed, a sample of 300 students was taken. Ninety of the sample students are in the Business College, 120 are in the Liberal Arts College, and 90 are in the Education College.

The expected frequency for the Business College is

Select one:

- a. 90
- b. 105 ✓
- c. 0.35
- d. 0.3

The correct answer is: 105

Question 4

Incorrect

Mark 0.00 out of
1.50

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The table below gives beverage preferences for random samples of teens and adults.

	Teens	Adults
Coffee	100	300
Tea	150	200
Soft Drink	150	100

We are asked to test for independence between age (i.e., adult and teen) and drink preferences. The expected number of adults who prefer coffee is

Select one:


- a. 140 ✘
- b. 210
- c. 160
- d. 240

The correct answer is: 240

Question **5**

Correct

Mark 1.50 out of 1.50

 Flag question

You want to test whether or not a sample of 30 observations follows a normal distribution. The number of intervals or categories or classes used to test the hypothesis for this problem is

Select one:

- a. 6 ✓
- b. 8
- c. 7
- d. 9

The correct answer is: 6

Question 6

Incorrect

Mark 0.00 out of 1.50

Flag question

In a completely randomized design involving four treatments, the following information is provided.

	Treatment 1	Treatment 2	Treatment 3	Treatment 4
Sample Size	50	18	15	17
Sample Mean	32	38	42	48

The overall mean (the grand mean) for all treatments is

Select one:

- a. 37.3
- b. 37.0
- c. 48.0
- d. 40.0 ✘

The correct answer is: 37.3

Question 7

Correct

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An ANOVA procedure is used for data obtained from five populations. Five samples, each comprised of 20 observations, were taken from the five populations. The numerator and denominator (respectively) degrees of freedom for the critical value of F are

Select one:

- a. 4 and 20
- b. 4 and 95 ✓
- c. 5 and 20
- d. 4 and 99

The correct answer is: 4 and 95

Question 8

Correct

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Flag question

The critical F value with 8 numerator and 29 denominator degrees of freedom at significance 0.01 is

Select one:

- a. 3.20 ✓
- b. 2.28
- c. 3.33
- d. 3.64

The correct answer is: 3.20

Question 9

Correct

Mark 1.50 out of 1.50

Flag question

Let $SSTR = 6750$ and $SSE = 8000$. Let $n_T = 20$. We want to test

$$H_0 : \mu_1 = \mu_2 = \mu_3 = \mu_4$$

H_1 : At least one mean is different

The mean square due to treatments (MSTR) equals

Select one:

- a. 500
- b. 400
- c. 2250 ✓
- d. 1687.5

The correct answer is: 2250

Question **10**

Correct

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Flag question

Let $SSTR = 6750$ and $SSE = 8000$. Let $n_T = 20$. We want to test

$$H_0 : \mu_1 = \mu_2 = \mu_3 = \mu_4$$

H_1 : At least one mean is different

The test statistic to test the null hypothesis equals

Select one:

- a. 0.22
- b. 4.5 ✓
- c. 0.84
- d. 4.22

The correct answer is: 4.5

Quiz 2:

1. 12.2 clear.

2. 12.2 clear

$$3. e_i = 300 \times \frac{35}{100} = 105.$$

$$4. e_{ij} = \frac{\text{Row total} \times \text{Column total}}{\text{sample size}} = \frac{600 \times 400}{1000} = 240.$$

$$5. k = \frac{n}{5} = \frac{30}{5} = 6.$$

$$6. \text{over all mean} = \frac{(50 \times 32) + (18 \times 38) + (15 \times 42) + (17 \times 48)}{50 + 18 + 15 + 17} = 37.3$$

$$7. \left. \begin{array}{l} \text{population} = 5 \\ \text{observation} = 20 \end{array} \right\} \rightarrow n_T = 20 \times 5 = 100$$

$$df_1 = k - 1 = 4$$

$$df_2 = n_T - k = 95$$

8. By F-table $\rightarrow F = 3.20$.

$$9. MSTR = \frac{MSTR}{k-1} = \frac{6750}{4-1} = 2250.$$

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10.

$$F = \frac{MSTR}{MSE} = \frac{2250}{500} = \underline{\underline{4.5}}$$

$$MSE = \frac{SSE}{n_T - k} = \frac{8000}{16} = 500$$

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