

1. The Melodic Kortholt Company will change its current health plan if at least half the employees are dissatisfied with it. A trial sample of 25 employees shows that 16 are dissatisfied. For a right-tailed test, the test statistic would be:

- i. A. 1.227
- ii. B. 1.375
- iii. C. 1.400
- iv. D. 1.115

2. A sample of 16 ATM transactions shows a mean transaction time of 67 seconds with a standard deviation of 12 seconds. State the hypotheses to test whether the mean transaction time exceeds 60 seconds.

- i. A. $H_0: \mu \leq 60, H_1: \mu > 60$
- ii. B. $H_0: \mu \geq 60, H_1: \mu < 60$
- iii. C. $H_0: \mu = 60, H_1: \mu \neq 60$
- iv. D. $H_0: \mu < 60, H_1: \mu \geq 60$

3. The process that produces Sonora Bars (a type of candy) is intended to produce bars with a mean weight of 56 gm. The process standard deviation is known to be 0.77 gm. A random sample of 49 candy bars yields a mean weight of 55.82 gm. Find the test statistic to see whether the candy bars are smaller than they are supposed to be.
- A. -1.636
 - B. -1.645
 - C. -1.677
4. The owner of a local nightclub has recently surveyed a random sample of $n = 250$ customers of the club. She would now like to determine whether or not the mean age of her customers is greater than 30. If so, she plans to alter the entertainment to appeal to an older crowd. If not, no entertainment
- $H_0 : \mu \geq 30$ versus $H_1 : \mu < 30$.
 - $H_0 : \mu \leq 30$ versus $H_1 : \mu > 30$.
 - $H_0 : X \geq 30$ versus $H_1 : X < 30$.
 - $H_0 : X \leq 30$ versus $H_1 : X > 30$.
5. A survey claims that 9 out of 10 doctors recommend aspirin for their patients with headaches. To test this claim against the alternative that the actual proportion of doctors who recommend aspirin is less than 0.90, a random sample of 100 doctors was selected. Suppose that the test statistic (Z_{stat}) is -2.20 . Can you conclude that H_0 should be rejected at the (a) $\alpha = 0.10$, (b) $\alpha = 0.05$, and (c) $\alpha = 0.01$ level of Type I error?
- (a) yes; (b) yes; (c) yes
 - (a) no; (b) no; (c) no
 - (a) no; (b) no; (c) yes
 - (a) yes; (b) yes; (c) no

6. A survey claims that 9 out of 10 doctors recommend aspirin for their patients with headaches. To test this claim against the alternative that the actual proportion of doctors who recommend aspirin is less than 0.90, a random sample of 100 doctors was selected. Suppose you reject the null hypothesis. What conclusion can you reach?
- i. There is not sufficient evidence that the proportion of doctors who recommend aspirin is not less than 0.90.
 - ii. There is sufficient evidence that the proportion of doctors who recommend aspirin is not less than 0.90.
 - iii. There is not sufficient evidence that the proportion of doctors who recommend aspirin is less than 0.90.
 - iv. There is sufficient evidence that the proportion of doctors who recommend aspirin is less than 0.90.

The Dean of the Business School would like to test the hypothesis that no difference exists between the average final exam grades for the Introduction to Marketing and the Introduction to Finance. A random sample of eight students who took both classes was selected and their final exam grades are as follows:

Course	1	2	3	4	5	6	7	8
Marketing	82	86	74	93	90	76	87	100
Finance	76	91	70	79	96	70	85	81

And the standard deviation of the matched pair difference is 8.54.

1. If Population 1 is defined as the final exam scores for the Marketing course, and Population 2 is defined as the final exam scores for the Finance course the correct hypothesis statement for this test would be:
 - A. $H_0: \mu_d \leq 0, H_1: \mu_d > 0$
 - B. $H_0: \mu_d \geq 0, H_1: \mu_d < 0$
 - C. $H_0: \mu_d = 0, H_1: \mu_d \neq 0$
 - D. $H_0: \mu_d < 0, H_1: \mu_d \geq 0$

2. If Population 1 is defined as the final exam scores for the Marketing course, and Population 2 is defined as the final exam scores for the Finance course, the mean of the matched pair difference is:
 - A. 14.8
 - B. 12.5
 - C. 8.3
 - D. 5

3. If Population 1 is defined as the final exam scores for the Marketing course, and Population 2 is defined as the final exam scores for the Finance course, the degrees of freedom for this matched pair difference is
 - A. 5
 - B. 6
 - C. 7
 - D. 8

4. If Population 1 is defined as the final exam scores for the Marketing course, and Population 2 is defined as the final exam scores for the Finance course, based on either the Critical Value or the Confidence Interval method, should you accept or reject the null hypothesis at $\alpha = .05$? Show your work.
 - A. Accept
 - B. Reject