

**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

**Question 1-3:** The hospital wishes to test whether the mean hand-washing time is less than 5 seconds. A random sample of 25 observations was selected and the following results:  $\bar{X} = 4.1$  second,  $s = 2.5$  second were obtained.

- 1) State the null and alternative hypotheses of the test.
 

A) $H_0: \mu \geq 5$ and $H_1: \mu < 5$	B) $H_0: \bar{X} = 5$ and $H_1: \bar{X} \neq 5$
C) $H_0: \mu \leq 5$ and $H_1: \mu > 5$	D) $H_0: \bar{X} \geq 5$ and $H_1: \bar{X} < 5$
  
- 2) The test statistic  $t_{cal}$  is
 

A) $t = (4.1-5) / (2.5/\sqrt{25}) = -9.00$	B) $t = 4.1-5 / (2.5/5) = -5.90$
C) $t = (5-4.1) / (2.5/5) = 1.80$	D) $t = (4.1-5) / (2.5/5) = -1.80$
  
- 3) At  $\alpha = 0.05$ . Which of the following is correct?
 

A) we reject $H_0$ .	B) we do not make a decision.
C) we can not find the level of significance.	D) we fail to reject $H_0$ .

**Question 4-6:** The business office of station WQKZ claims that more than 25% of the people listen to WQKZ radio as they drive to work. The random selected poll revealed that out of 70 interviewed, 25 reported listening to WQKZ as they drive to work. You want to test the claim.

- 4) State the test of interest.
 

A) $H_0: p \leq 0.25$ versus $H_1: p > 0.25$	B) $H_0: p \leq 0.30$ versus $H_1: p > 0.30$
C) $H_0: p \geq 0.25$ versus $H_1: p < 0.25$	D) $H_0: \mu \geq 0.25$ versus $H_1: \mu > 0.25$
  
- 5) The  $p$ -value associated with the test statistic in this problem is approximately equal to
 

A) 2.0702	B) 0.0192	C) 0.9808	D) 0.0384
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- 6) The decision on the hypothesis test using a 2.5% level of significance is
 

A) no decision should be make	B) to fail to reject $H_0$
C) to reject $H_0$	D) to fail to reject $H_1$

**Question 7-8:** We want to test  $H_0: \mu = 32.50$  versus  $H_1: \mu \neq 32.50$  at  $\alpha = 0.01$ . The population standard deviation equals to 1.35. Suppose that the sample of 36 observations indicates a sample mean of 33.00.

- 7) What is the test statistic of the test?
 

A) -111.444	B) 28.989	C) -2.222	D) 2.222
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- 8) Which of the following is correct?
  - A) since the test statistic is greater than the critical value, we fail to reject  $H_0$
  - B) since the test statistic is less than the critical value, we reject  $H_0$
  - C) since the test statistic is less than the critical value, we fail to reject  $H_0$
  - D) since the test statistic is greater than the critical value, we reject  $H_0$
  
- 9) If, as a result of a hypothesis test, we fail to reject  $H_0$  when  $H_1$  is true, then we have committed
 

A) no error.	B) a Type II error.	C) a Type I error.
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Answer Key

Testname: SAMPLE\_QUIZ5.TST

**MULTIPLE CHOICE.** Choose the one alternative that best completes the statement or answers the question.

- 1) A
- 2) D
- 3) A
- 4) A
- 5) B
- 6) C
- 7) D
- 8) C
- 9) B