Sample Quiz 6
**MULTIPLE CHOICE.  Choose the one alternative that best completes the statement or answers the question.**

1) When testing $H_0 : \mu_1 - \mu_2 = 0$ versus $H_1 : \mu_1 - \mu_2 \neq 0$, the test statistic was found to be $Z_{cal} = 1.92$. Suppose $\alpha = $ **0.05**, which of the following is correct ?

A) with $p\text{-}value=0.0274$, we reject $H_0$  B) with $p\text{-}value=0.9726$, we fail to reject $H_0$

C) with $p\text{-}value=0.0548$, we fail to reject $H_0$  D) with $p\text{-}value=0.0548$, we reject $H_0$

Question 2-4: Surveys have been widely used by politicians. Six months age, a survey was undertaken to determine the degree of support for a national party leader. Of a sample of 400 voters, 232 indicated that they would vote for this politician. This month, another survey of 320 voters revealed that 164 would vote for this politician. Let $p_1$ and $p_2$ represent the true proportion for six months ago and this month, respectively. If the politician wanted to test whether the proportions have changed,

2) which represents the hypotheses?

A) $H_0: p_1 - p_2 \geq 0$ versus $H_1: p_1 - p_2 < 0$  B) $H_0: p_1 - p_2 \leq 0$ versus $H_1: p_1 - p_2 > 0$

C) $H_0: p_1 - p_2 = 0$ versus $H_1: p_1 - p_2 \neq 0$  D) $H_0: p_1 - p_2 \neq 0$ versus $H_1: p_1 - p_2 = 0$

3) Which formula should be used  to compute the value of the test statistic ?

A) eq 10.9  B) eq 10.16  C) eq 10.5  D) eq 10.8

4) At the 0.05 level,  which of the following is most correct if the test statistic is 1.809?

A) Reject $H_0$. There is enough evidence to conclude that the proportions have not changed.

B) Fail to reject $H_0$. There is not enough evidence to conclude that the proportions have not changed.

C) Fail to reject $H_0$. There is not enough evidence to conclude that the proportions have changed.

D) Reject $H_0$. There is enough evidence to conclude that the proportions have changed.

Question 5-6: A manufacturing company is interested in testing whether, on average, the Kansas City Plant has spent less assembly time than the Baltimore Plant on its products. A random sample of 28 items from Kansas City Plant and a  random sample of 30 items from the Baltimore plant yield the following data (in hours):

Kansas City Plant: $\overline{X}_K = 6.2$,  $S^2_K = 0.28$
Baltimore Plant: $\overline{X}_B = 6.5$,  $S^2_B = 0.33$

5) Which of the following represents the relevant hypotheses tested by the company?

A) $H_0 : \mu_K - \mu_B \geq 0$ versus $H_1 : \mu_K - \mu_B < 0$  B) $H_0 : \mu_K - \mu_B \leq 0$ versus $H_1 : \mu_K - \mu_B > 0$

C) $H_0 : \overline{X}_K - \overline{X}_B \geq 0$ versus $H_1 : \overline{X}_K - \overline{X}_B < 0$  D) $H_0 : \mu_K - \mu_B = 0$ versus $H_1 : \mu_K - \mu_B \neq 0$

6) Suppose $\alpha = 0.05$ and the test statistic is $-1.897$ and the degree of freedoms df$=55.99$. Which of the following represents the result of the relevant hypothesis test?

A) can't find the level of significance.  B) no decision.

C) fail to reject $H_0$.  D) reject $H_0$.

Question 7-9: It is claim that an industrial safety program is effective in reducing the loss of working hours due to factory accidents. The following data are collected concerning the weekly loss of working hours due to accidents in six plants both before and after the safety program is instituted.

| Plant | Before | After | Difference (Before–After) |
|-------|--------|-------|---------------------------|
| 1 | 12 | 10 | 2 |
| 2 | 29 | 28 | 1 |
| 3 | 16 | 17 | −1 |
| 4 | 37 | 35 | 2 |
| 5 | 27 | 25 | 2 |
| 6 | 16 | 15 | 1 |
| mean: | | | 1.1667 |
| standard deviation: | | | 1.1690 |

7) the hypotheses test are :

A) $H_0 : \mu_d \le 0; H_1 : \mu_d > 0$

B) $H_0 : \mu_d \le 0; H_1 : \mu_d < 0$

C) $H_0 : \mu_d \ge 0; H_1 : \mu_d < 0$

D) $H_0 : \mu_d = 0; H_1 : \mu_d \ne 0$

8) What is the value of the test statistic?

A) 0.407      B) 1.476      C) −2.445      D) 2.445

9) Suppose $\alpha = 0.05$. Which of the following represents the result of the relevant hypothesis test?

A) fail to reject $H_0$

B) reject $H_0$

C) no decision

D) can't find the level of significant

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

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