Chapter 9 FRAPPY!
Student Sample Commentary

Sample #1
In Section 1, the response includes correct hypotheses using the parameters p_1 and p_2, which are defined acceptably (even though "similar to the ones in this study" is omitted), so components 1 and 2 are satisfied. Because the response identifies the correct inference procedure by name, component 3 is also satisfied. With all three components satisfied, Section 1 is scored essentially correct (E). In Section 2, the response correctly checks the random assignment satisfying component 1. The large counts condition is checked using the expected counts calculated from the combined (pooled) proportion $\hat{p}_C$, with sufficient work shown to satisfy component 2. Because the correct standardized test statistic and *P*-value are reported, components 3 and 4 are also satisfied. With all four components satisfied, Section 2 is scored essentially correct (E). In Section 3, the response compares the *P*-value to the significance level (component 1) and makes a correct decision about the null hypothesis. The subsequent sentence includes context (component 3), but is equivalent to accepting the null hypothesis, so component 2 is not satisfied. Section 3 is scored partially correct (P) because two components are satisfied. With two parts essentially correct and one part partially correct, the response earned a score of 3.

Sample #2
In Section 1, the response includes correct hypotheses, satisfying component 1. The parameters are not defined, so component 2 is not satisfied. The response correctly identifies the test procedure, so component 3 is satisfied. With two components satisfied, Section 1 is scored partially correct (P). In Section 2, the response incorrectly states that random samples were taken, so component 1 is not satisfied. The large counts condition is checked using observed counts instead of expected counts based on the combined (pooled) proportion $\hat{p}_C$, so component 2 is minimally satisfied. The response provides an incorrect formula for the standardized test statistic that does not use $\hat{p}_C$ in the denominator when calculating the standard error, and that includes notation for parameters (p_T and p_C) rather sample proportions, so component 3 is not satisfied. The reported *P*-value is correct for the stated *z*-score and direction of the alternative hypothesis, satisfying component 4. Because the response inappropriately checks the 10% condition when there was no sampling involved in this study, the number of components satisfied is reduced from 2 to 1. So Section 2 is scored as incorrect (I). In Section 3, the response provides a correct conclusion about the alternative hypothesis in context, which satisfies components 2 and 3. However, the response does not explicitly compare the *P*-value to the significance level (component 1), so with two components satisfied, Section 3 is scored as partially correct (P). With two parts partially correct and one part incorrect, the response earned a score of 1.