Quiz 5 BUM2413, Applied Statistics, Sem II 2013/2014

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Section:

Question (10 points)

The ionizing radiation method will be implemented to preserve horticultural products if more than 70% of the products still marketable after 240 days. A study is conducted to measure the effect of the method where from a sample of 180 radiated garlic bulbs, 153 is found to be still marketable after 240 days. Can we conclude that the ionizing radiation method able to preserve the garlic bulbs? Test at 5% level of significance.

Step 1 Hypothesis

$H_0 : \Pi \leq 0.7$

$H_1 : \Pi > 0.7$ (claim)

Step 2 calculate test

$$p = \frac{153}{180} = 0.85$$

$$Z\ test = \frac{0.85 - 0.7}{\sqrt{\frac{0.7(1-0.7)}{180}}} = 4.3916$$

Step 3 $\alpha = 0.05$ test is right tailed test, then critical value is 1.6449

Step 4 $Z\ test = 4.3916 > Z = 1.6449$, the decision is reject H_0

Step 5 Therefore, there is sufficient that the ionizing radiation method able to preserve the garlic bulbs at $\alpha = 0.05$