

長庚大學期中、期末考試答案用紙

科目

學年度 第 學期 考 系 姓名 學號

1. (a) $\mu=70$ $\sigma=8$ $n=25$ $\bar{x}=73$ $\alpha=0.05$

(i) $H_0: \mu \geq 70$

$z = \frac{73-70}{8/\sqrt{25}} = \frac{3}{1.6} = 1.875$

$H_1: \mu < 70$

$P_1(\bar{x} < 73 | \mu = 70) = 0.03 < 0.05$ (檢定) \therefore 不能拒絕

(b) $\mu=70$ $\sigma=9$ $n=25$ $\bar{x}=73$ $\alpha=0.05$

$z = 1.875$

$P_1(\bar{x} < 73 | \mu = 70) = 0.03 < 0.05$ (檢定)

$P(\bar{x} < 73) = 0.0387 < 0.05$ 檢定 \therefore 不能拒絕

2. (a) $E(\hat{p}) = E(\frac{X}{n}) = \frac{1}{n} E(X) = \frac{1}{n} np = p$

(b) $Var(\hat{p}) = Var(\frac{X}{n}) = \frac{1}{n^2} Var(X) = \frac{1}{n^2} \cdot n \cdot p \cdot q = \frac{1}{n} p \cdot q$

$std(\hat{p}) = \sqrt{\frac{1}{n} p \cdot q}$

(c) $\hat{p} = \frac{60}{100} = 0.6$

$0.6 - 1.96 \sqrt{\frac{0.6 \cdot 0.4}{100}} = 0.6 - 0.0768 = 0.5232$

$0.6 + 0.0768 = 0.6768$ $[0.5232, 0.6768]$

(d) $0.6 - 1.645 \sqrt{\frac{0.6 \cdot 0.4}{100}} = 0.6 - 0.0809 = 0.5191$

$0.6 + 0.0809 = 0.6809$

$[0.5191, 0.6809]$

(d) 不能拒絕

(請翻面繼續作答)