>1.

(1) $\hat{p} = \frac{105}{250} = 0.42$

$0.42 \pm Z_{0.05}\sqrt{\frac{0.42 \times 0.58}{250}}$

$= 0.42 \pm 1.645 \times 0.03$

$= 0.42 \pm 0.05$

$\Rightarrow (0.37, 0.47)$

(2)

(a) $\hat{p} = 0.3 \quad e = 0.03 \quad 1-\alpha = 0.95$

$e = \frac{\sigma}{\sqrt{n}} \times Z$

$n = \left(\frac{Z}{e}\right)^2 \times \hat{p} \times (1-\hat{p})$

$n = \left(\frac{1.96}{0.3}\right)^2 \times 0.3 \times 0.7 = 896.37$

$\fallingdotseq 897$

0.98

(b)

$\hat{p} = 0.42$

$n = \left(\frac{1.96}{0.03}\right)^2 \times 0.42 \times 0.58 = 1039.19$

33.8

34

$\fallingdotseq 1040.$

(C) $\hat{p} = 0.5$

$n = \left(\frac{1.96}{0.03}\right)^2 \times 0.5 \times 0.5 = 1067.11 \fallingdotseq 1068$