

$$d) \left(\hat{\theta} - z \frac{\hat{\sigma}}{\sqrt{n}}, \hat{\theta} + z \frac{\hat{\sigma}}{\sqrt{n}} \right)$$

$$n=100, \hat{\sigma} = \sqrt{\hat{\theta}(1-\hat{\theta})}$$

$$\left(\frac{59}{100} - 1.96 \times \frac{\sqrt{0.59 \times 0.41}}{\sqrt{100}}, \frac{59}{100} + 1.96 \times \frac{\sqrt{0.59 \times 0.41}}{\sqrt{100}} \right)$$

$$(0.59 - 0.0964, 0.59 + 0.0964)$$

$$(0.4936, 0.6864)$$

$$\left(\frac{0.6}{10} - 1.96 \times \frac{\sqrt{0.6 \times 0.4}}{\sqrt{10}}, \frac{0.6}{10} + 1.96 \times \frac{\sqrt{0.6 \times 0.4}}{\sqrt{10}} \right)$$

$$(0.50398, 0.69602)$$

$$\left(\frac{0.7}{10} - 1.96 \times \frac{\sqrt{0.7 \times 0.3}}{\sqrt{10}}, \frac{0.7}{10} + 1.96 \times \frac{\sqrt{0.7 \times 0.3}}{\sqrt{10}} \right)$$

$$(0.6102, 0.7898)$$

$$3) \frac{100}{n} C_n$$