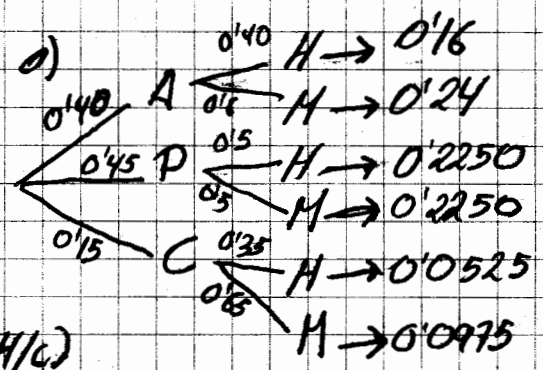


Corrección 1º Control - 1ª Evaluación Matemáticas - C.S.S.2 18-10-17

- ① Legenda:  
 A = abrigo o animales  
 P = " " las plantas  
 C = " " a ciertas comidas  
 H = hombre  
 M = mujer



b)  $P(H) = P(A)P(H/A) + P(P)P(H/P) + P(C)P(H/C)$   
 $= 0.16 + 0.2250 + 0.0525 = \boxed{0.4375}$

c)  $P(P/H) = \frac{P(P)P(H/P)}{P(H)} = \frac{0.2250}{0.24 + 0.2250 + 0.0975} = \boxed{0.4}$

②  $n=100 \quad X \sim N(920, 140)$

a)  $\alpha = 0.05 \rightarrow Z_{\alpha/2} = 1.96 \quad [920 - 1.96 \frac{140}{\sqrt{100}}, 920 + 1.96 \frac{140}{\sqrt{100}}] = \boxed{[802.56, 947.94]}$

b)  $\alpha = 0.03 \rightarrow 1 - \frac{0.03}{2} = 0.9850 \rightarrow Z_{\alpha/2} = 2.17$   
 $ENC = 20 \quad n \approx \left(\frac{2.17 \cdot 140}{20}\right)^2 = 230.7361$   
 $\boxed{231}$

③  $X \in Bi(80, 0.65) \xrightarrow[np=52.75]{n=80, p=0.65} X \approx N(52, 4.27)$   
 $nq = 28.75$

a)  $np = 52$  puede

b)  $P(X > 60) = P\left(Z > \frac{60 - 52}{4.27}\right) = P(Z > 1.88) = 1 - P(Z \leq 1.88) = 1 - 0.9699 = \boxed{0.0301}$

c)  $P(45 \leq X \leq 55) = P\left(\frac{45 - 52}{4.27} \leq Z \leq \frac{55 - 52}{4.27}\right) = P(-1.64 \leq Z \leq 0.70)$   
 $= P(Z \leq 0.70) - P(Z \leq -1.64) = 0.7580 - 0.0539 = \boxed{0.7041}$

④  $X \in Bi(250, 0.54) \xrightarrow[np=135.75]{n=250, p=0.54} X \approx N(135, 7.88)$  los que pagan.  
 $nq = 115.75$

a)  $nq = 115$  comparan

b)  $P(130 \leq X \leq 145) = P\left(\frac{130 - 135}{7.88} \leq Z \leq \frac{145 - 135}{7.88}\right) = P(-0.6337 \leq Z \leq 1.27) =$   
 $= P(Z \leq 1.27) - P(Z \leq -0.6337) = 0.8980 - 0.2643 = \boxed{0.6337}$

c)  $X \approx N(135, 7.88)$  son los que no pagan

$P(X < 115) = P\left(Z \leq \frac{115 - 135}{7.88}\right) = P(Z \leq -2.54) = \boxed{0.0061}$

$$\textcircled{5} \quad n = 520$$

$$p = \frac{150}{520} = 0.2885$$

$$a) \quad \alpha = 0.03 \quad z_{\alpha/2} = 2.17$$

$$\left[ 0.2885 - 2.17 \sqrt{\frac{0.2885 \cdot 0.7115}{520}}, 0.2885 + 2.17 \sqrt{\frac{0.2885 \cdot 0.7115}{520}} \right]$$

$$\boxed{0.2454, 0.3316}$$

$$b) \quad EMC = 0.02$$

$$\alpha = 0.05 \quad z_{\alpha/2} = 1.96$$

$$n \geq \frac{1.96^2 \cdot 0.2885 \cdot 0.7115}{0.02^2} = 1971.39$$

$$\boxed{n \geq 1972}$$