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Nombre del profesor: Jorge Enrique Albores

Nombre del trabajo : actividad de bioestadística

Materia: bioestadística

Grado: cuarto

Grupo: B

Rango $= 60-20/6 = 5$

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Intervalo	Fi	% fi	% fia	$\overline{x_i}$	fia	$Fi\overline{x_i}$	$\overline{x_i}^2$	$Fi\overline{x_i}^2$	
20 - 25	3	12	12	22.5	3	67.5	506.25	1518.75	$\Sigma fi = 25$
25 - 30	4	16	28	27.5	7	110	756.25	3025	$\Sigma fi\overline{x_i} = 907.5$
30 - 35	5	20	48	32.5	12	162.5	1056.25	5281.25	$\Sigma fi\overline{x_i}^2 = 35656.25$
35 - 40	2	8	56	37.5	14	75	1406.25	2812.5	
40 - 45	4	16	72	42.5	18	170	1806.25	7225	
45 - 50	7	28	100	46.5	25	322.5	125625	1579375	

Media $\left(\bar{x} = \dfrac{\Sigma fixi}{n}\right) = \dfrac{907.5}{25} = 36.3$

$\dfrac{n}{2} = \dfrac{25}{2} = 12.5$

Mediana $\left(me = Li + \dfrac{\frac{n}{2} - fia-1 \cdot ai}{fi}\right)$

$Me = 35 + \dfrac{12.5 - 12}{2} \cdot 5 = 36.25$

Modo $\left(mo = \dfrac{Li + fi - fi-1}{fi - fi-1 + fi - fi+1}, ai\right)$ $mo = \dfrac{5 + 7-4}{(7-4)+(7-0)} \cdot 5 = 46.5$

$\delta = \sqrt{113.08}$
$\delta = 10.63$

Varianza $\left(s^2 = \dfrac{\sum fi\,\overline{x_i}^2 - \dfrac{(\sum fi\overline{x_i})^2}{n}}{n-1}\right)$ $s^2 = \dfrac{35656.25 - \dfrac{(907.5)^2}{25}}{24} = \dfrac{2714}{24} = 113.08$

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Rango = N.M − Nmenor / No. Intervalos ∴ $\frac{80-36}{7}$ = 6

Intervalo	Fi	%Fi	Fia	%Fia	$\overline{x_i}$	$Fi\overline{x_i}$	$\overline{x_i}^2$	$Fi\overline{x_i}^2$
38 - 44	8✔	22.22	8	22.22	41	328	1681	13448
44 - 50	5	13.88	13	36.11	47	255	2209	11045
50 - 56	3	8.33	16✔	44.44	53	159	2809	8427
56 - 62	4	11.11	20✔	55.55	59	236	3481	13924
62 - 68	4	11.11	24	66.66	65	260	4225	16900
68 - 74	5	13.88	29	80.55	71	355	5041	25205
74 - 80	7	19.44	36	100	77	539	5929	4503

$\Sigma fi = 36$
$\Sigma fi\overline{x_i} = 2132$
$\Sigma fi\overline{x_i}^2 = 130952$

Media $\left(\overline{x} = \frac{\Sigma Fi\overline{x_i}}{n}\right)$ $\overline{x} = \frac{2132}{36} = 59.22$

Moda $= Li + \frac{Fi - Fi-1}{Fi-Fi-1+Fi-Fi+1} \cdot ai$

Mediana $\left(Me = Li + \frac{\frac{n}{2} - fi-1}{fi} \cdot ai\right)$

$\frac{n}{2} = \frac{36}{2} = 18$

$Me = \frac{56 + 18 - 16}{4} \cdot 6$

$Me = \frac{56 + 2}{4} \cdot 6$

$Me = 59$

$Mo = 38 + \frac{8 - 0}{(8-0)+(8-5)} \cdot 6 = 42.36$

Varianza $S^2 = \frac{\Sigma fi\overline{x_i}^2 - \frac{(\Sigma fi\overline{x_i})^2}{n}}{n-1} \cdot ai$

$S^2 = \frac{130952 - \frac{(2132)^2}{36}}{35}$

$S^2 = 134.00$

$S\sqrt{134} = S = 11.57$

Ejercicio 3

$N = 50000$

$P = 76\% = 0.76$

$q = 1 - P = 1 - 0.76 = 0.24$

$B = 4\% = 0.04$

$n = \dfrac{N \cdot P \cdot q}{(N-1)(D) + P \cdot q}$

$D = \dfrac{B^2}{4}$

$D = \dfrac{(0.04)^2}{4} = 0.0004$

$n = \dfrac{50000 \,(0.76)(0.24)}{49999 \,(0.0004) + (0.76)(0.24)} = 451.88$

$n = 452$

Ejercicio 4

$N = 10000$

$P = 0.5$

$q = 1 - P = 1 - 0.5 = 0.5$

$B = 5\% = 0.05$

$n = \dfrac{N \cdot P \cdot q}{(N-1)D + P \cdot q}$

$D = \dfrac{B^2}{4}$

$D = \dfrac{(0.05)^2}{4} = 0.000625$

$n = \dfrac{10000 \,(0.5)(0.5)}{9999 \,(0.000625) + (0.5)(0.5)} = 384.65$

$n = 385.$

Ejercicio 1

$N = 45000$

$P = 0.5$

$q = 1 - P = 1 - 0.5 = 0.5$

$B = 3\% = 0.03$

$D = \dfrac{B^2}{4} = \dfrac{(0.03)}{4} = 0.000225$

$n = \dfrac{N \cdot P \cdot q}{(N-1) D + P \cdot q}$

$n = \dfrac{45000 \, (0.5)(0.5)}{(44999) + (0.5)(0.000225)} = 1084.36$

$n = 1085.$

Ejercicio 2.

$N = 20000$

$P = 72.5\% = 0.725$

$q = 1 - 0.725 = 0.275$

$B = 5\% = 0.05$

$D = \dfrac{B^2}{4} = \dfrac{(0.05)^2}{4} = 0.000625$

$n = \dfrac{N \cdot P \cdot q}{(N-1) D + P \cdot q}$

$n = \dfrac{20000 (0.725)(0.275)}{19999 (0.000625) + 0.725(0.275)} = 314.00$

$n = 314$

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Ejercicio 5

$N = 25000$

$P = 55\% = 0.55$

$q = 1 - P = 1 - 0.55 = 0.45$

$B = 2\% = 0.02$

$n =$

$$\frac{N \cdot P \cdot q}{(N-1)D + P \cdot q}$$

$$D = \frac{B^2}{4}$$

$$D = \frac{(0.02)^2}{4}$$

$$D = 0.0001$$

$$n = \frac{25000(0.55)(0.45)}{24999(0.0001) + (0.55)(0.45)} = 2282.12$$

$n = 2283$

Ejercicio 6

$N = 15000$

$P = 66\% = 0.66$

$q = 1 - P = 1 - 0.66 = 0.34$

$B = 3\% = 0.03$

$n =$

$$\frac{N \cdot P \cdot q}{(N-1)D + P \cdot q}$$

$$D = \frac{B^2}{4} = 0.000225$$

$$D = \frac{(0.03)^2}{4} = 0.000225$$

$$n = \frac{15000(0.66)(0.34)}{14999(0.000225) + (0.66)(0.34)} = 936.21$$

$n = 936.$