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Nombre del trabajo: ejercicio

Materia: bioestadística

Grado: 4°

Grupo: "B"

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Bioestadistica.

$Rango = 50 - 20 / 6 = 5$

Intervalo	f_i	$\%.f_i$	$\%.f_{ia}$	$\overline{x_i}$	f_{ia}	$f_i\overline{x_i}$	$\overline{x_i}2$
20 - 25	3	12	12	22.5	3	67.5	506.25
25 - 30	4	16	28	27.5	7	110	756.25
30 - 35	5	20	48	32.5	12	162.5	1056.25
35 - 40	2	8	56	37.5	14	75	1406.25
40 - 45	4	16	72	42.5	18	170	1806.25
45 - 50	7	28	100	45.5	25	3225	2256.25

$f_i\overline{x_i}^2$

151875

3025

5281.25

2812.5

7225

1579375

$\sum \%f_i = 25$

$\sum f_i\overline{x_i} = 907.5$

$\sum f_i\overline{x_i}2 = 35656.25$

$Media(\overline{x} = \dfrac{\sum f_i x_i}{n}) = \dfrac{907.5}{3} = 36.3$

$Mediana(me = L_i + \dfrac{\frac{n}{2} - f_{ia} - 1 \cdot a i}{f_i})$

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

$M_e = 35 + \dfrac{12.5 - 12.5}{2} = 36.25$

$Moda(mo = L_i + \dfrac{f_i - f_{i1}}{f_i - f_{i+1} + f_i - f_{i+1}} \cdot a2)$ $mo = 5 + \dfrac{7-4}{(7-4)+(7-0)} \cdot 3 = 46.5$ $S = \sqrt{43.08}$

$S = 16.63$

$Varianza(S^2 = \dfrac{\sum f_i x_i2 - \dfrac{(\sum f_i\overline{x_i})^2}{n}}{n-1})$

$= \dfrac{2714}{24} = 113.08 \longrightarrow S^2 = \dfrac{35656.25 - \dfrac{(907.5)^2}{25}}{24}$

$$\text{Rango} = N.M - N\text{menor}/\text{nointervalos} \quad \frac{80-36=6}{7}$$

Intervalo	f_i	%.f_i	f_{ia}	%.f_{ia}	$\overline{x_i}$	$f_i\overline{x_i}$	$\overline{x_i}^2$	$f_i\overline{x_i}^2$
38 – 44	8	22.22	8	22.22	41	328	1681	13498
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	16400
68 – 74	5	13.88	29	80.55	71	355	5041	25205
74 – 80	7	19.44	36	100	77	539	5929	4503

$\sum f_i = 36$

$\sum f_i\overline{x_i} = 2132$

$\sum f_i\overline{x_i}^2 = 130952$

$$\text{Media}\left(\overline{x} = \frac{\sum f_i\overline{x_i}}{n}\right) \quad \overline{x} = \frac{2132}{36} = 54.22$$

$$\text{Moda} = L_i + \frac{f_i - f_{i-1}}{(f_i - f_{i-1}) + (f_i - f_{i+1})} \cdot a_i$$

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

$$\text{Mediana}\left(M_e = L_i + \frac{\frac{n}{2} - f_{i-1}}{f_i} \cdot a_i\right)$$

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

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

$$me = 59$$

$$\text{Varianza} \quad S^2 = \frac{(\sum f_i\overline{x_i})^2}{n} \cdot a_i \quad n-1$$

$$S^2 = \frac{130952 - \frac{(2132)^2}{36}}{35} \qquad S^2 = 134.00 \qquad S\sqrt{134} = S = 11.57i$$

Ejercicio 1

$N = 45000$

$P = 0.5$

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

$B = 3\% = 0.03$

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

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

$$n = \dfrac{45000\,(0.5)(0.5)}{(44\,499) + (0.5)(0.000225)} = 1084.36$$

$n = 1085$

Ejercicio 2

$N = 20\,000$

$P = 72.5\% = 0.725$

$q = 1 - 0.725 = 0.275$

$B = 5\% = 0.5$

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

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

$$n = \dfrac{20000\,(0.725)(0.275)}{14999\,(0.000625) + 0.725(0.275)}$$

$n = 314.$

Ejercicio 3

$N = 50,000$

$P = 76\% = 0.76$

$q = 1 - P = 7 - 0.76 \cdot 0 = 24$

$B = 4\% = 0.04$

$n = N \cdot P \cdot q$

$(N - 4 \times 0 + P \cdot q$

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

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

$n = \dfrac{50000 \,(0.76)\,(0.24)}{4999\,(0.0004) + (0.76)(0.24)} = 451.88$

$n = 452$

Ejercicio 4

$N = 10\,000$

$P = 0.5$

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

$B = 5\% = 0.5$

$n = N \cdot P \cdot a$

$(N - 1)\, D + P \cdot q$

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

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

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

$n = 385$

Ejercicio 5

$N = 25000$

$P = 55\% = 0.55$

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

$B = 2\% = 0.02$

$n = $

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

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

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

$$D = 0.0001$$

$$n = \frac{25000 \, (0.55)(0.45)}{24999 (0.0001) + (0.55)(0.45)} = 2252.12$$

$n = 2253$

Ejercicio 6

$N = 15000$

$P = 66\% = 0.66$

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

$B = 3\% = 0.03$

$n = $

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

$$D = \frac{D}{4}^2 = D \cdot 0.0000225$$

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

$$N = \frac{15000 \, (0.66)(0.34)}{14999 \, (0.000225) + (0.66)(0.34)} = 935.21$$

$n = 936$