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Class	(f)	(x)	f(x)	f log x	f/x	$x-\bar{x}$ Here $\bar{x} = \frac{75}{20} = 3.75$	$f_i\lvert x_i-\bar{x}\rvert$	$f_i(x_i-\bar{x})^2$
1 - 2	1	1.5	1.5	0.176	0.66	-2.25	2.25	5.06
2 - 3	3	2.5	7.5	1.194	1.2	-1.25	3.75	4.687
3 - 4	8	3.5	28	4.352	2.286	-0.25	2	0.5
4 - 5	6	4.5	27	3.919	1.33	0.75	4.5	3.375
5 - 6	2	5.5	11	1.48	0.384	1.75	3.5	6.125
total	20	~~75~~	75	11.12	5.87		16	19.75

a) $A.M = \frac{1}{n}\sum_{i=0}^{n} f_i x_i = \frac{75}{20} = 3.75$

b) $G.M = \text{Antilog}\left(\frac{1}{n}\sum_{i=1}^{n} f_i \log x_i\right)$

$= \text{Antilog}\left(\frac{11.12}{20}\right)$

$= 3.597$

c) $H.m = \frac{n}{\sum_{i=1}^{n} \frac{f_i}{x_i}} = \frac{20}{5.87} = 3.41$

d) Mean deviation, $MD = \frac{1}{n}\sum_{i=1}^{n} f_i\lvert x_i-\bar{x}\rvert = \frac{16}{20} = 0.8$

e) Varience, $\sigma^2 = \frac{1}{n}\sum_{i=1}^{n} f_i(x_i-\bar{x})^2 = \frac{19.75}{20} = 0.987$

Standard deviation, $\sigma = \sqrt{\sigma^2} = \sqrt{0.987} = 0.99$

f) Co efficient of Varience, $CV = \frac{\sigma}{\bar{x}} = \frac{0.99}{20} \times 100\%$

$= 26.5\%$

3.1)

$A = \{3, 6, 9, 12, 15, 18\}$ [multiple of 3]

$B = \{5, 10, 15, 20\}$ [" " 5]

So that,

$P(A) = \frac{6}{20}$ and $P(B) = \frac{4}{20}$

Now,

$(A \cap B) = \{15\}$ $\therefore P(A \cap B) = \frac{1}{20}$

$\therefore P(A \cup B) = \frac{6}{20} + \frac{4}{20} - \frac{1}{20} = \frac{9}{20}$ (Ans)

3.2)

Total students $= 15 + 10 = 25$

Probability of selecting 1 girl and 2 boys $= \frac{{}^{10}C_1 \times {}^{10}C_2}{{}^{25}C_3}$

$= \frac{21}{46}$ (Ans)

3.3) Total balls $= 4 + 5 + 6 = 15$

Getting All red $= \frac{{}^{5}C_3}{{}^{15}C_3} = \frac{2}{91}$ (Ans)

3.4) Total engineers $= 5 + 6 = 11$

a) All E.E $= \frac{{}^{5}C_4}{{}^{11}C_4} = \frac{1}{66}$

b) 2 E.E and 2 C.E $= \frac{{}^{5}C_2 \; {}^{6}C_2}{{}^{11}C_4} = \frac{5}{11}$ (Ans)