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Serial no: 08

class interval	Frequency f	cf	Midpoint, x	f/x	$\sum x$	$f \log x$	$f/x$	$x - \bar{x}$	$ x - \bar{x} $	$f x - \bar{x} $	$f(x - \bar{x})^2$
1-2	1	1	1.5	1.5	75.20 3.75	0.176	0.667	-2.25	2.25	2.25	5.062
2-3	3	4	2.5	7.5	3.75	1.94	1.2	-1.25	1.25	3.75	14.062
3-4	8	12	3.5	28	3.75	4.352	2.286	-0.25	0.25	2	9
4-5	6	18	4.5	27	3.75	3.219	1.333	0.75	0.75	4.5	20.25
5-6	2	20	5.5	<del>4</del> 11	3.75	1.481	0.369	1.75	1.75	3.5	12.25
Total	20			75		11.19	5.85			16	55.624



Arithmetical mean ;

$$A_m = 75/20 = \cancel{3.75} \quad 3.75$$

Geometrical mean ;

$$G_m = \text{Antilog} \left( \frac{n \cdot 14}{20} \right) = 3.60$$

Harmonic mean

$$H_m = \frac{20}{8.85} = 3.419$$

Mean Deviation ;

$$M_D = \frac{16}{20} = 0.8$$

Variance ;

$$s^2 = \frac{55.624}{20} = 2.781$$



$$s = 8$$

Standard Deviation

$$s = \sqrt{2.781} = 1.668$$

Median

$$3 + \left( \frac{10 - 4}{8} \right) \times 1$$

$$= 3.75$$

Mode

$$3 + \frac{8 - 3}{2 \times 2 - 3 - 6} \times 1$$

$$= 3.71$$

coefficient of Variation

$$CV = \frac{1.668}{3.75} \times 100\%$$

$$= 44.48\%$$



$$S=8$$

## Probability

3.1)

$$\text{Let } A = \text{multiple of } 3 = \{3, 6, 9, 12, 15, 18\} = P(A) = \frac{6}{20}$$

$$B = \text{multiple of } 5 = \{5, 10, 15, 20\} = P(B) = \frac{4}{20}$$

$$A \cap B = \{15\} = \frac{1}{20}$$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$= \frac{6}{20} + \frac{4}{20} - \frac{1}{20}$$

$$= \frac{9}{20}$$



$$5 = 8$$

3.2] There are total 15 + 20 students

$$= 25$$

~~There~~

1 girl and 2 boys  $P(A) = \frac{{}^{15}C_2 \times {}^{10}C_1}{{}^{25}C_3}$

$$= \frac{21}{46}$$

3.3] There are total 4 + 6 + 5 = 15 Balls

$\therefore$  All three red  $P(B) = \frac{{}^5C_3}{{}^{15}C_3}$

$$= \frac{2}{91}$$



$$S = 8$$

3. d)

There are  $5 + 6 = 11$  engineers

a) all electronic engineers  $P(A) = \frac{5eq}{11eq}$

$$= \frac{1}{11}$$

b) 2 electronic and 2 com puter engineers

$$P(B) = \frac{5eq \cdot 6eq}{11eq}$$

$$= \frac{5}{11}$$