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Ans to the Que No. 15

Cls Interval	freq(f)	cf	Mid point, x	fx	x'	flogx	f/x	|xi-x'|	f|xi-x'|	f(xi-x')^2
1-2	1	1	1.5	1.5		0.18	0.67	2.25	2.25	5.06
2-3	3	4	2.5	7.5		1.19	1.20	1.25	3.75	4.69
3-4	8	12	3.5	28	3.75	4.39	2.29	0.25	2	0.50
4-5	6	18	4.5	27		3.92	1.33	0.75	4.5	3.38
5-6	2	20	5.5	11		1.48	0.36	1.75	3.5	6.13
Total	20					11.12	5.85		16	19.75

From the table,

a) Arithmetic mean = $\frac{75}{20} = 3.75$

Geometric mean = antilog $\left(\frac{5.85}{20}\right) = 3.597$

Harmonic mean = $\frac{20}{5.85} = 3.419$

b) Total, $n = 20$, $\therefore \frac{n}{2} = \frac{20}{2} = 10$

class (3-4), we get of = 12 > 10

This is our median class.

Median, $M_e = L + \frac{\frac{n}{2} - c}{f} \times h$

$= 3 + \frac{10-4}{8} \times 1 = 3.75$

) serial-10

we have the highest frequency 8. Hence,

This is our modal class

$$\text{mode, } M_0 = L_t + \frac{f_m - f_1}{2f_m - f_1 - f_2} \times h = 3 + \frac{8-3}{2\times 8 - 3 - 6} \times 1$$

$$= 3.71$$

c) Mean = 3.75

from, b, mediah = 3.75

$$SK = \text{mean} - \text{median} = 3.75 - 3.75$$

$$= 0 \text{ [that is symmetric}$$

d) mean deviation $= \frac{16}{20} = 0.80$

e) variance $\sigma^2 = \frac{19.75}{20} = 0.99$

standard deviation $\sigma = \sqrt{0.99} = 0.995$

(f) coefficient of variation $= \frac{0.995}{3.75} \times 100\%$

$$= 26.53\%$$

(Ans)

Series-10

Ex-3

1) Tickets are numbered as 1 to 20

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

So, $P(A) = \frac{6}{20} = \frac{3}{10}$

B = multiple of 5 $\{5, 10, 15, 20\}$

$\therefore P(B) = \frac{4}{20} = \frac{1}{5}$

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

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

$= \frac{3}{10} + \frac{1}{5} - \frac{1}{20}$

$= \frac{9}{20} = 0.45$ (Ans)

serial-10 :

2) There are 15 boys and 10 girls in a class

Total student = (10+15) = 25

∴ 1 girl and Two boys are selected at random

The probality = $\frac{15c_2 \times 10c_1}{25c_3}$

$= \frac{21}{46} = 0.457$ (Ans)

3) There are 5 electronic engineers and 6 computer engineers in a mobile operators office.

Total engineer = (5+6) = 11

a) Let, A = all electronic Engineers,

$P(A) = \frac{5c_4}{11c_4} = \frac{1}{66} = 0.015$

b)

Serial-10

b) B = 2 electronic engineers and 2 computer engineers.

$$P(B) = \frac{{}^5C_2 \times {}^6C_2}{{}^{11}C_4} = \frac{5}{11} = 0.45$$