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Q=1

Sol

A/x	B/y	C/z	x^2	y^2	z^2
12	3	5	144	9	25
15	13	14	225	169	196
6	43	36	36	2401	1296
73	102	105	5329	10404	11025
7	175	99	49	30625	9801
19	220	20	361	48400	400
199	204	15	39601	41616	225
36	139	96	1296	19321	9216
84	69	13	7056	4761	169
65	30	45	4225	900	2025
Σ 516	998	448	58322	158606	34,378

a) Better run getter, Arthimetic mean of Batsman A

$$\bar{x} = \frac{\Sigma x}{n} = \frac{516}{10}$$

$$\bar{x}_A = 51.6$$

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Arthimetic mean of Battsman B

$$\bar{x}_B = \frac{\Sigma x}{n}$$

$$\bar{x}_B = \frac{998}{10}$$

$$\boxed{\bar{x}_B = 99.8}$$

Arthimetic mean of Batsman C

$$\bar{x} = \frac{\Sigma x}{n}$$

$$= \frac{1118}{10}$$

$$= 111.8$$

The batsman with more A.M is better run getter so Batsman B with A.M of 99.8 is better run getter

more consistent player

co-efficient of variation, C.V of batsman A

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$$C.V = \frac{S}{\bar{x}} \times 100$$

Standard devation of A

$$S = \sqrt{\frac{\Sigma x^2}{n} - \left(\frac{\Sigma x}{n}\right)^2}$$

$$S = \sqrt{\frac{5832.2}{10} - \left(\frac{516}{10}\right)^2}$$

$$\boxed{S = 56.29}$$

$$C.V \text{ of } A = \frac{S}{\bar{x}_A} \times 100$$

$$= \frac{56.29}{51.6} \times 100$$

$$\boxed{= 109.08\%}$$

-> C.V of $B = \frac{S_B}{\bar{x}_B} \times 100$

Standard deviation of B

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$$S_B = \sqrt{\frac{\Sigma V^2}{n} - \left(\frac{\Sigma V}{n}\right)^2}$$

$$= \sqrt{\frac{158606}{10} - \left(\frac{998}{10}\right)^2}$$

$$S_B = \sqrt{5900.36}$$

$$\boxed{S_B = 76.81}$$

$$C.V \text{ of } B = \frac{S_B}{\bar{x}_B} \times 100$$

$$= \frac{76.81}{99.8} \times 100$$

$$\boxed{= 76.96\%}$$

→ C.V of $C = \frac{S_C}{\bar{x}_C} \times 100$

Standard deviation of C

$$S_C = \sqrt{\frac{\Sigma z^2}{n} - \left(\frac{\Sigma z}{n}\right)^2}$$

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$$= \sqrt{\frac{341378}{10} - \left(\frac{448}{10}\right)^2}$$

$$Sc = \sqrt{1430.79}$$

$$\boxed{Sc = 37.82}$$

$$C.V \text{ of } c = \frac{Sc}{\bar{x}c} \times 100$$

$$= \frac{37.82}{44.8} \times 100$$

$$\boxed{= 84.41\%}$$

The batsman with last co-efficient of variation is more consistent player of batsman B with C.V = 7696 is more consistent player

c) More variate player

A large value of co-efficient of variation indicates that ei is more variate.

Hence C.V of A = 109.08%. So batsmen.

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Q#2 Calculate Mean, Mode and Median

Discuss the symmetrical and skewness characteristics -

Classes	f	x	Fx	C.F	C.B
2 - 4	3	3	9	3	1 - 5
6 - 8	13	7	91	16	5 - 9
10 - 12	6	11	66	22	9 - 13
14 - 16	10	15	150	32	13 - 17
18 - 20	5	19	95	37	17 - 21
22 - 24	3	23	69	40	21 - 25
26 - 28	5	27	135	45	25 - 29
30 - 32	3	31	93	48	29 - 33
34 - 36	2	35	70	50	33 - 37
	$\Sigma f = 50$		$\Sigma fx = 778$		

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i) **Mean**

$$\bar{x} = \frac{\Sigma fx}{\Sigma f}$$

$$= \frac{778}{50} = 15.56$$

$$\boxed{\bar{x} = 15.56}$$

ii) **Median**

$$= l + \frac{h}{f}\left(\frac{\Sigma f}{2} - c\right)$$

$$\frac{\Sigma f}{2} = \frac{50}{2}$$

$$= 25$$

$$= 13 + \frac{4}{10}(25 - 22)$$

$$= 13 + \frac{4}{10} \times 3$$

$$= 13 + \frac{12}{10}$$

$$\boxed{\text{Median} = 14.2}$$

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iii) $$\text{Mode} = L + \frac{f_m - f_1}{2f_m - f_1 - f_2} \times h$$

$$= 5 + \frac{13 - 3}{2 \times 13 - 3 - 6} \times 4$$

$$= 5 + \frac{10}{26 - 6} \times 4$$

$$= 5 + \frac{10}{20} \times 4$$

$$= 5 + \frac{40^2}{\cancel{20}_1}$$

$$= 5 + 2$$

Mode = 7

Mean ≠ Median ≠ Mode

So data is skewned.

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Q # 3 Discuss merits and demerits of Medium and G. Mean.

Ans

Geometric Mean :

Merits :

=> It is rigidly defined and its value is precise figure.

=> It is based on all observation.

=> It is capable of futher algebraic treatment

=> It is not much affected by fluctuation of Sampling.

=> It is not affected by extreme values.

Demerits :

=> It cannot be calculate if any one of the observation is negative or zero

=> It calculation is rather difficult.

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=> It is not easy to understand.

=> It may not coincide with any of the observation.

⇒ Median :

Merits :

=> It is easily calculated and understood.

=> It is located even when the values are capable of quantitative measurment.

=> It is not affected by extreme values It can be computed even when frequency distribution involves "open-end" classes like those of income and price.

=> In a highly skewed distribution, median is an appropriate average to use.

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Demerits :

=> It is not rigorously defined.

=> It is not capable of lending itself to futher statistical treatment.

=> It necessitates the arrangement of data into an array which can tedious and time cobsuming for a large body of data.

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