SUBHARAM GOVT. DEGREE COLLEGE, PUNGANUR 517247

DEEPARTMENT OF STATISTICS

PROJECT WORK BY STUDENT

S.NO	YEAR	NAME OF THE STUDENT	PROGRAM	NAME OF THE MENTOR	DEPARTMENT	TITLE
1	2017-18	O.ADI LAKSHMI	B.Sc.(MSC'S)	B.CHANDRASEKHARA REDDY	STATISTICS	RELATIVE EFFICIENCY OF DESIGNS
2	2017-18	S.IMRAN	B.Sc.(MSC'S)	B.CHANDRASEKHARA REDDY	STATISTICS	BAYES THEOREM
3	2018-19	G.R KUSUMA	B.Sc.(MSC'S)	B.CHANDRASEKHARA REDDY	STATISTICS	MEASRES OF CENTRAL TENDENCY
4	2019-20	D.MURALI	B.Sc.(MSC'S)	B.CHANDRASEKHARA REDDY	STATISTICS	TWO PHASE SIMPLEX METHOD
5	2020-21	E.FAYAZ	B.Sc.(MSC'S)	B.CHANDRASEKHARA REDDY	STATISTICS	TRANSPORTATON PROBLEM
6	2021-22	KAMSALA CHANDANA	B.Sc.(MSC'S)	A.MUNIRATHNAM	STATISTICS	CORRELATION COEFFICIENT
7	2021-22	CHAKALA SOWMYA	B.Sc.(MSC'S)	A.MUNIRATHNAM	STATISTICS	N.P LEMMA
8	2022-23	L SREENIVASULU	B.Sc.(MSC'S)	A.MUNIRATHNAM	STATISTICS	TIME SERIES
9	2022-23	K.VANI	B.Sc.(MSC'S)	A.MUNIRATHNAM	STATISTICS	MOMENTS
10	2023-24	V.MUNTAJ BEGUM	B.Sc.(MSC'S)	A.MUNIRATHNAM	STATISTICS	NON PERAMETRIC TEST
11	2023-24	K.SRAVANI	B.Sc.(MSC'S)	A.MUNIRATHNAM	STATISTICS	NON PERAMETRIC TEST

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Government

Degree

College

1st B.sc (MSCS)

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Moments :-

Raw moments The rth moment of a variable x about the point $x = A$ is known as the rth raw moment and its usually denoted by m_1' are defined by.

$$\mu_1' = \frac{\sum_{i=1}^{n} f_i d_i}{N} \qquad d_i = x_i - A$$

$$\mu_1' = \frac{\sum f_i d_i}{N} \qquad \mu_3' = \frac{\sum f_i d_i^3}{N}$$

$$\mu_2' = \frac{\sum f_i d_i^2}{N} \qquad \mu_4' = \frac{\sum f_i d_i}{N}$$

moments about the origin :-

moments about the rth moment of a variable about the find $x = A = 0$ is known as the rth moment about origin and its defined by.

$$\mu_0' = \frac{\sum_{i=1}^{n} f_i x_i^r}{N}$$

$$\mu_1' = \frac{\sum f_i x_i}{N} = \bar{x} \Rightarrow \mu_3' = \frac{\sum f_i x_i^3}{N}$$

$$\mu_2' = \frac{\sum f_i x_i}{N} \Rightarrow \mu_4' = \frac{\sum f_i x_i^4}{N}$$

Central moment :-

central moment are moment about mean the r^{th} moment of a variable about the point $x = \bar{x}$ is known as central moment and is denoted by m_r and is defined by.

$$\mu_r = \frac{\sum_{i=1}^{n} f_i z_i^{r}}{N} \qquad z_i = x_i - \bar{x}$$

$$\mu_1 = 0 \qquad \mu_2 = \frac{\sum f_i z_i}{N} = \text{variance}$$

$$\mu_3 = \frac{\sum f_i z_i^{3}}{N} \qquad \mu_4 = \frac{\sum f_i z_i^{4}}{N}$$

Relation between central moment Bt terms of raw moment?

solution :- The r^{th} central moment about the point $x = \bar{x}$ is Given by $\mu_r = \frac{\sum f_i z_i}{N}$

$$z_i = | x_i - \bar{x} |$$

$$\mu_1 = \frac{\sum f_i (x_i - \bar{x})^{r}}{N}$$

$$= \frac{\sum f_i (x_i - A + A - \bar{x})^{r}}{N}$$

$$= \frac{\sum fi\left[(xi - A) - (x - A)\right]^2}{N}$$

$$\Rightarrow \bar{x} = A + \frac{\sum fd}{N}$$

$$\bar{x} - A = \frac{\sum fd}{N} = \mu_1$$

$$d = xi - A$$

$$= \frac{\sum fi}{N}\left(di - \mu_1'\right)^r$$

$$= \frac{\sum fi}{N}\left[{}^rc_0 d^0 (-\mu_1')^r + r_4 d(-\mu_1')^{r-1} + {}^rc_2 d^2 (-\mu_1')^{r-2} + {}^rc_3 d^3\right.$$
$$\left.(-\mu_1')^{r3} + {}^rc_1 d^4 (-\mu_1')^{r-4} + \cdots + {}^rc_r d^r (-\mu_1')^{r-r}\right]$$

$$= {}^rc_0 \frac{\sum fidi}{N}(-\mu_1')^r + {}^rc_1 \frac{\sum fd}{N}(-\mu_1')^{r-1} + {}^rc_2 \frac{\sum fd^2}{N}(-\mu_1')^2 + {}^rc_3$$
$$\frac{\sum fd^3}{N}(-\mu_1')^3 + {}^rc_4 \frac{\sum fd^4}{N}(-\mu_1')^4 + \cdots + {}^rc_r \frac{\sum fd^r}{N}$$
$$(-\mu_1')^{r-r}$$

$$\mu_r' = \frac{\sum fd^r}{N}$$

The rth row moment about the point $x = A$

$$\mu_r = {}^rc_0(-\mu_1')^r + {}^rc_1(\mu_1')(-\mu_1')^{r-1} + {}^rc_2\ \mu_2'(-\mu_2') + {}^rc_3$$

$$\mu_3'(-\mu_1')^3 + rc_4(\mu_4')(-\mu_1')^4 + \cdots + \mu_r'$$

$$= \mu_r' + rc_{r-1}(\mu_{r-1}')(-\mu_1') + rc_{r-2}(\mu)(-\mu_1')^2 + rc_{r-3}$$

$$(\mu_1')(-\mu_1')^3 \cdots + rc_{r-4}\,\mu_4'(-\mu_1')^4$$

$$+ \cdots + (-\mu_1')^r$$

$r=0 \quad = \mu_0 = \mu_0' = 1$

$r = 1 \Rightarrow \mu_1 = \mu_1' + {}^1c_0\,(\mu_0')(-\mu_1')$

$$= \mu_1' - \mu_1' = 0$$

$r = 2 \Rightarrow \mu_2 = \mu_2' + 2c_1(\mu_1')(-\mu_1') + 2c_0\,\mu_0'$

$$(-\mu_1)^2$$

$$= \mu_1' - 2(\mu_1')^2 + (\mu_1')^2 = \mu_2' - (\mu_1')^2$$

$r = 3 \Rightarrow \mu_3 = \mu_3' + 3c_2\,\mu_2'(-\mu_1') + 3c_1(\mu')(-\mu_1')^2$

$$+ 3c_0(\mu_1')^0(-\mu_1')^3$$

$$= \mu_3' + 3(\mu_2')(-\mu_1') + 3(\mu_1')(-\mu_1')^2 +$$

$$1 \cdot 1\,(-\mu_1')^3$$

$$= \mu_3' - 3\mu_2'\,\mu_1' + 3(\mu_1')^3 - (\mu_1')^3$$

$$= \mu_3' - 3\mu_2'\,\mu_1' + 2(\mu_1')^3$$

$$\mu_4 = \mu_4 - 4\,\mu_3'(\mu_1') + 6\,\mu_2'(\mu_1')^2 - 3(\mu_1')^4$$