H/CBCS/SEM 5/LS /Problem Set: 3 Date:

Large Sample Tests Using Variance Stabilizing Transformations

1. A manufacturer of T.V. sets claims that not more than 2% of his products are defective. A retail dealer buys a batch of 520 T.V. sets from the manufacturer and finds 19 defectives. Test whether the manufacturer's claim is justified by the data.

2. In a sample of 380 men from a certain city 254 are found to be smokers. In another sample of size 500 from a bigger city 342 are found to be smokers. Do the data indicate that the two cities are significantly different with respect to the prevalence of smoking?

3. Suppose two books, containing 556 and 700 pages, contain 32 and 54 misprints respectively. Do the data indicate that there is significant difference between the average number of misprints in the two books?

4. The standard deviations of income for the two years are 182 and 204 corresponding to 1610 and 1423 individuals respectively. Test whether the two standard deviations are significantly different from each other.

5. The correlation coefficient between brother's height and sister's height for 530 pairs was found to be 0.585. Is this correlation significantly smaller than 0.8?

6. The correlation coefficient between sitting height and stature was found to be 0.7854 for a group of 390 adult Indians and for a group of 370 adult Europeans was 0.5209. Do the two coefficients differ significantly?

7. The following correlation coefficients were obtained from independent samples of different sizes of bivariate normal populations. Test for the homogeneity of all the four correlations coefficients.

Correlation Coefficients	0.34	0.40	0.81	0.72
Sample sizes	100	120	90	95