

Probability and Statistics
Test Set 9

1. Following are measurements on the nicotine content (in mg) in a random sample of 72 cigarettes:

1.72 1.62 1.52 1.23 1.83 1.30 1.56 1.53
 1.24 1.73 1.23 1.54 1.29 1.49 1.57 1.53
 1.58 1.52 1.39 1.88 1.21 1.87 1.23 1.66
 1.72 1.28 1.56 1.98 1.48 1.44 1.79 1.98
 1.74 1.54 1.79 1.60 1.73 1.97 1.87 1.88
 1.79 1.87 1.75 1.98 1.66 1.76 1.98 1.65
 1.80 1.71 1.70 1.85 1.71 1.56 1.73 1.69
 1.68 1.87 1.54 1.39 1.47 1.16 1.57 1.45
 1.63 1.62 1.24 1.63 1.70 1.80 1.92 1.45

Group these measurements into class intervals of length 0.05 and obtain the frequency distribution. Find arithmetic mean, median and other quartiles, mode, standard deviation and inter-quartile range.

2. A weather scientist obtained the following daily field estimates of acid contents (in mg per cubic meter of air) in Kolkata during the months of June through September, 2004. The data is for ninety days.

9.4	7.2	10.1	6.9	4.7	7.2	6.8	9.1	9.9
5.9	6.9	7.7	8.8	4.9	8.3	6.9	5.6	7.6
8.0	6.6	3.2	5.7	9.1	7.5	9.2	8.7	8.8
6.1	6.8	6.6	6.2	6.8	6.6	8.1	6.0	4.8
5.7	3.2	4.4	4.3	4.6	5.9	3.4	4.5	5.8
4.9	6.7	3.8	3.3	5.3	2.8	3.9	6.7	5.5
5.6	3.9	2.5	5.0	3.2	2.3	2.9	7.8	10.4
2.2	2.5	1.6	3.7	5.9	3.8	6.7	7.9	5.3
3.8	4.8	2.6	6.2	1.8	5.5	5.4	9.8	4.6
6.1	5.7	8.8	9.2	9.0	5.3	3.9	2.6	5.8

Group these data into a frequency distribution with class intervals of length 1.0. Calculate the first four non-central and central moments, measures of skewness and kurtosis from this.

3. Prepare frequency histogram, frequency polygon, frequency curve and cumulative frequency curve (ogive) from the classified data obtained in Problems 1 and 2.