

## LIST 6. Nonparametric hypothesis

1. On a road between the hours of 8 to 9 counted the number of passing vehicles in the coming days of the week and the results are summarized in the table:

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
17	26	19	30	28	35	13

Based on this table and using the  $\chi^2$  test verify the hypothesis that the number of vehicles traveling along this road during that time are the same in each of days of a week.

2. In order to check whether the coin is symmetrical, 90 throws were made and the following results were obtained:

Result	0	1
Number of throws	42	48

Test the hypothesis that the probability of falling 0 and 1 are the same.

3. Time of work (in hours) randomly selected batteries was measured and gave the following results:  
 33.16 34.23 27.90 36.33 32.39 34.89 35.70 31.99 34.03 32.40 33.00 32.98 34.00  
 29.10 31.20 31.40 31.00 29.15 31.56 36.00 35.50 32.14 38.00 30.95 34.50 33.00  
 32.40 33.14 30.10 35.00.

Verify that the battery can be treated as a random normally distributed variable.

4. The number of errors in the revised 500-page are in table below:

Number of errors	0	1	2	3	4	5	6	7	8
Number of pages	67	139	134	90	44	15	6	4	2

Verify at the level of significance  $\alpha=0.05$  the hypothesis that the number of errors on the supporters follows the Poisson distribution.

5. Information was obtained from the Marketing Department of a trading company with monthly turnover of 20 randomly selected retail outlets in A (in the thousands. PLN): 53,6 93,0 107,5 95,2 117,2 136,6 125,1 121,4 115,1 115,9 154,8 165,1 139,2 216,1 219,0 222,1 235,1 230,0 213,5 241,8 ; and with monthly turn over of 20 randomly selected retail outlets in B (in the thousands PLN): 51,5 83,0 103,1 105,2 107,3 130,7 124,3 121,3 113,5 115,1 158,4 165,9 123,9 206,9 220,1 220,5 225,1 231,8 215,4 248,5 . Using the Kolmogorov-Smirnov test verify the hypothesis that the distributions of sales outlets in cities A and B are the same.