Bilkent University
Department of Mathematics

PROBLEM OF THE MONTH

Term: July-August 2011

Let $A = \{a_1, \ldots, a_n\}$ and $S(A)$ be a set of some subsets $D \subset A$ such that

- each subset $D \in S(A)$ contains at most $n - 1$ elements

- each element of A belongs to exactly 4 distinct subsets

- any unordered pair of distinct elements $a_i, a_j \in A$ belongs to exactly one subset D.

Determine the maximal possible value of n.