10/30/06

EXTREMAL SET THEORY:

SET OF n ELEMENTS : $[n]$

$P_n = \{A : A \subseteq [n]\}$

$|P_n| = 2^n$

$Q_n = \{A : A \subseteq [n], |A| - \text{odd}\}$

$|Q_n| = 2^{n-1}$

A, A^c

(ii) EVERY TWO CLUBS SHARE AN EVEN NUMBER OF MEMBERS

$|C_n| - ??$

$$\binom{n}{k} \leq \binom{n}{\lfloor n/2 \rfloor}$$

$$\frac{1}{\binom{n}{\lfloor n/2 \rfloor}} \leq \frac{1}{\binom{n}{k}}$$

$$\sum_{A \in \mathcal{A}} \frac{1}{\binom{n}{|A|}} \leq 1 \quad \text{——— (1)}$$

$$\boxed{\sum_{A \in \mathcal{A}} \frac{1}{\binom{n}{\lfloor n/2 \rfloor}}} \leq \sum_{A \in \mathcal{A}} \frac{1}{\binom{n}{|A|}} \leq 1$$

$$\frac{|\mathcal{A}|}{\binom{n}{\lfloor n/2 \rfloor}} \leq 1$$

$$|\mathcal{A}| \leq \binom{n}{\lfloor n/2 \rfloor}$$

$$\sum_{A \in \mathcal{A}} \frac{1}{\binom{n}{|A|}} \leq 1$$

$1, \ldots n$

$\pi(1)\ \pi(2) \qquad\qquad \pi(n)$

$1, 3, 5, 2, 4, \ldots \quad n$

$n, n-1, n-2 \ldots 1$

$\{\pi(1), \ldots \pi(|A|)\} = A$

$\{\pi(1), \ldots, \pi(|B|)\} = B$