Çankaya University
Department of Computer Engineering

CENG 277 - Discrete Structures

Name-Surname: 20.11.2014

ID Number:

CLASSWORK 6

There are 6 students: A, B, C, D, E, F. they will sit in a row but the pairs $A - B$, $C - D$ and $E - F$ do not want to sit next to each other. In how many different ways can they do this?

Answer:

From all distributions, subtract those that $A - B$ (or $C - D$, or $E - F$) sits together. Then add distributions where 2 couples sit together. Subtract those where 3 couples sit together.

$$6! - 3 \cdot 2 \cdot 5! + 3 \cdot 2^2 \cdot 4! - 2^3 \cdot 3! = 240$$

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CLASSWORK 6

We will form a 6 – letter word using the letters A, B, C, D, E, F. We want to use at least one A and one B. In how many different ways can we do this?

Answer:

From all distributions, subtract those not including A, then not including B. Add the ones not including A and B.

$$6^6 - 5^6 - 5^6 + 4^6 = 19502$$