SC205- Discrete Mathematics

Home Work 7

Tutorial Discussion Week: March 16, 2020

(1) List all the permutations of $\{a, b, c\}$.

(2) Let $S = \{1, 2, 3, 4, 5\}$. List all the 3-combinations of S.

(3) How many bit strings of length seven either begin with two $0's$ or end with three $1's$?

(4) How many bit strings of length ten either begin with three $0's$ or end with two $0's$?

(5) Using combinatorial proof show that

$$k\binom{n}{k} = n\binom{n-1}{k-1}, 1 \le k \le n.$$

(6) Find the expansion of $(x + y)^4$ using combinatorial reasoning.