Name and surname: **Date: November 14, 2019**

EXAM 6 (duration: 40 minutes)

DatZ1143: Discrete mathematics for computing
Instructor: Abuzer Yakaryılmaz
Autumn 2019

Questions

(There are 5 questions with total 10 points.)

1) You have 9 balls numbered from 1 to 9. The first 4 balls are blue, the next 3 balls are red, and the last 2 balls are green.
1.a) How many different pairs of balls can you pick if each pair has one blue ball and one red or green ball? (2 points)

1.b) How many different pairs of balls can you pick if each pair has at least one red ball? (2 points)

2) How many bit strings are there of length seven or less? (1 point)

3) How many positive integers less than 1002 are divisible by 11 but not by 13? (1 point)

4) A palindrome is a string whose reversal is identical to the string. How many bit strings of length 11 are palindromes? (2 points)

5) A bowl contains 9 pink balls and 8 orange balls. Abu selects balls at random without looking at them.
5.a) How many balls must Abu select to be sure of having at least four balls of the same color? (1 point)

5.b) How many balls must Abu select to be sure of having at least four pink balls? (1 point)