

EXAM 9 (duration: 25 minutes)

DatZ1143: Discrete mathematics for computing

Instructor: Abuzer Yakaryılmaz

Name and surname:

Student number:

Date:

Questions

(There are 5 questions, 10 points in total.)

1. What is the probability that when a coin is flipped five times in a row, it lands heads up every time? [1 point]
2. What is the probability that a randomly selected integer chosen from the first 51 positive integers is odd? [1 point]
3. What is the probability that a positive integer not exceeding 60 selected at random is divisible by 3 or 5? [2 points]

In the 4th and 5th questions, bits are independent and a 0 bit and a 1 bit are equally likely when a bit string is randomly generated.

4. Let E be the event that a randomly generated bit strings of length three contains an odd number of 1s, and let F be the event that the string starts with 1. Show that E and F are independent. [3 points]

5. Find the probability that a randomly generated bit string of length 6 contains the same numbers of 0s and 1s. [3 points]