

**EXAM FOR PROBABILITY & STATISTICS (6PAS1)
WINTER SEMESTER 2025/2026**

QUESTIONS SET NO. 5

1.

- a) Write a formula for the probability of the union of two arbitrary random events.
- b) What is the relationship between probabilities of an arbitrary random event and its complement?
- c) Give at least 4 different definitions of independence of two random events.
- d) Give a definition of independence of two random variables.

2. Every day in a 30-day month, arrives a shipment with 250 processors, among them 17 are faulty. A controller selects randomly 5 processors. Let X be the number of faulty processors among those selected by the controller. What is the probability that $X = 0$ at least in 50% of all days?