

**EXAM FOR PROBABILITY & STATISTICS (6PAS1)**  
**WINTER SEMESTER 2024/2025**

QUESTIONS SET NO. 1

- 1.** Define expectation and variance of a random variable. Write and prove an alternative formula for variance which is mostly used on practice (easier for computations).
- 2.** Prove the memoryless property of the geometric distribution, i.e.,  $P(X > n + k | X > k) = P(X > n)$  for any  $n$  and  $k$ .