

**EXAM FOR “ALGEBRAIC STRUCTURES” (6ALGS)  
SUMMER SEMESTER 2023/2024**

QUESTIONS SET NO. 4

**1.**

Define ideal of a ring, and homomorphism of rings. Illustrate these notions by examples. What is a relationship between these two notions?

**2.**

Give an example of a group of prime order, having an element  $x$  different from 1 and such that  $x^2 = 1$ .

**3.**

Compute the automorphism group of  $\mathbb{Z}/4\mathbb{Z}$ .