**EXAM FOR TOPOLOGY**
**WINTER SEMESTER 2024/2025**

QUESTIONS SET NO. 2

**1.** Give a definition of a metric space. Provide examples. What are relation(s) between the notions of a metric space and a topological space?

**2.** Do there exist two topological spaces, and a continuous map between them, such that:
a) the image of any open set is closed?
b) the image of any closed set is open?
c) the conditions a) and b) are satisfied simultaneously?