

**FMT-08**  
**MSc (SECOND SEMESTER) EXAMINATION, 2021**  
**MATHEMATICS**  
**PAPER: VIII**  
**TOPOLOGY-II**

**MAX MARKS: 35**

**Note: Attempt all the questions.**

- Q 1. Prove that the product of regular space is regular.
- Q 2. State and prove that the Urysohn metrization theorem.
- Q 3. Prove that a topological space  $X$  is compact if and only if for every family of subsets of  $X$  having finite intersection property has non-empty intersection.
- Q 4. Prove that the projection functions are open.