



COMSATS University Islamabad

Attock Campus



Department of Mathematics

Assignment # 01

Class: BSM-IV

Subject: Set Topology

Instructor: Dr. Atiq ur Rehman

Due Date: 18-02-2024

Course Code: MTH251

Marks: 20

Name: _____

Reg: _____-BSM-_____

Question # 1: Define open and closed sets. Prove that φ and X are open and closed sets in any topological space (X, τ) .

Question # 2: Prove that in a discrete topological space (X, \mathcal{D}) , every subset of X is closed.

Question # 3: Write three open sets and three closed sets of cofinite topology defined on \mathbb{N} .

Question # 4: Define open interval and closed interval. Let \mathcal{U} represents the collection of open intervals and union of open intervals of \mathbb{R} . The topology $(\mathbb{R}, \mathcal{U})$ is called usual topology. (a) Write two open set G_1 and G_2 which are not open intervals. (b) Prove that closed interval $[7, 22]$ is closed set in $(\mathbb{R}, \mathcal{U})$. (c) Write two closed sets which are not closed intervals.
