COMSATS University Islamabad

Attock Campus

Department of Mathematics

Quiz/Assignment # 02

Class: RMT & PMT
Subject: Topology
Instructor: Dr. Atiq ur Rehman

Due Date: 30-09-2024
Course Code: MTH631, MTH731
Marks: 9

Please write the following two sentences on your answer paper and sign.

1. **I know, I am not allowed to get answer from any living person (friend or class fellows) and I will not do this.**
2. **I know, I am not allowed to ask the question to any A.I. tools and I will not do this.**

Question # 1: It is possible to make three topological spaces on $\mathbb{Z}$? If yes, please write those topological spaces.

Question # 2: Consider a discrete topological space on $\mathbb{R}^2$.
Draw $A = \{(x, y) | -1 < x < 1, 1 < y < 2\}$. What is closure of A.
Draw $B = \{(x, y) | x^2 < y, 0 < y < 2\}$, Write A' and closure of A.

Question # 3: Consider a usual topology on $\mathbb{R}$. Consider a sequence $\left\{1 + \frac{2}{n^2}\right\}$.

(i) Is the sequence convergent?
(ii) What is the limit of the sequence?
(iii) Justify the answer.

Question # 4: Consider discrete topological space on $\mathbb{N}$.

(i) Write the two its bases.
(ii) Write three of its subbase.
(iii) Write the local base for point 57.
