Mini Quiz

Module: Set Theory

CS 203: Discrete Structures

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INSTRUCTIONS: A student should consider the last two digits of his or her roll number. Divide it by 6. Take the remainder. Suppose the student gets $i(0 \leq i \leq 5)$ as remainder. Then the student should answer $(i+1)^{th}$ numbered question. For example, if the last two digits are 20, the student should answer question number 3. Answer it in a paper, take a clear picture and submit your answer in jpg or pdf format in moodle. An event named setMiniQuiz is created in moodle. Submit it there. The name of the jpg or pdf file should be your roll number. You are given 5 minutes to answer and 5 minutes to upload.

1. Give an example of two uncountable sets A and B such that $A - B$ is finite.
2. Give an example of two uncountable sets A and B such that $A - B$ is countably finite.
3. Give an example of two uncountable sets A and B such that $A - B$ is uncountable.
4. Justify whether the set of all bit strings not containing the bit 0 is countable or uncountable.
5. Give an example of two uncountable sets A and B such that $A \cap B$ is uncountable.
6. Comment whether set A $= \{1/n : n \in \mathbb{N}\}$ is countable or uncountable. Justify your answer. Based on your answer choose which of these is true.
   a) $A \subset$ [0,1]
   b) $A \supset$ [0,1]
   c) $A \subseteq$ [0,1]
   d) $A \supseteq$ [0,1]
   e) $A = [0, 1]$