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| Salahaddin University–Erbil |  | Module: | Mathematical Analysis |
| College of Basic Education | Stage: | Third |
| Department: Mathematics | Round: | First |
| First Semester Examination  2022-2023 | Time: | 2 Hours |

Q1: Define an ordered field F, and show that for any if , then .

(10 Marks)

Q2: Define countable set, and show that the set of all real numbers is not countable set.

(10 Marks)

Q3: State Dense of irrational numbers, show that between any two distinct real numbers, there is an irrational number. (10 Marks)

Q4: Use method to show that a sequence converges to . (10 Marks)

Q5: Prove or disprove the following: (5+5+5+5) Marks

1. Every Convergent sequence is bounded.
2. (.
3. If converges to and converges to , then converges to -.
4. If a subset *A* of an ordered field *F* has a least upper bound, then it has also greatest lower bound.

Examiner: Dr. Sami Ali Hussein