FIRST MIDTERM GRADING SCHEME (PARTIAL CREDITS)
MATH 104, SECTION 4

Problem 1:

(a) Incomplete definition: 3/5.

(b)
- Proof that almost goes through: 17/20;
- Part of the proof make sense: 12/20;
- Proof that doesn't make sense and can't be fixed, but something related and reasonable is written: 7/20;
- Give a correct proof but NOT based on the definition: 7/20;
- Something true but totally unrelated is written: at most 2/20.

Problem 2:

- Get the correct limit, but has computational mistakes in the proof, or the proof is almost finished: 17/20.
- Get the correct limit, but has crucial logic flaw in the proof: 12/20.
- Guess the correct limit, but the proof doesn't make sense: 5/20.

Problem 3:

(a)
- Didn't prove one of the following: 1) the sequence is increasing; 2) the sequence is bounded; 3) the limit is 5: 15/20.
- Didn't prove two of the following: 1) the sequence is increasing; 2) the sequence is bounded; 3) the limit is 5: 10/20.
- Has the right idea but the proof doesn't make sense: 7/20.
- The answer or proof is totally off, but showed some relevant work: 5/20.

(b)
- Didn't explain why $\liminf = \lim$ in this case: 3/5.
- Wrote the correct definition of $\liminf$ but get the wrong answer: 3/5.

Problem 4:

(I) The answer is TRUE.
- Give the right answer but incomplete proof: 10/15.
- Give the right answer but didn't give a proof that makes sense: 5/15.

(II) The answer is FALSE.
- Give the right answer but didn't give a counterexample: 10/15.

(III) The answer is TRUE. No partial credit for this problem.

(IV) The answer is FALSE.

- Wrong answer but showed some relevant ideas of proving $-M \leq a \leq M$: 10/15.
- Give the right answer and some relevant ideas, but didn't give a counterexample: 10/15.
- Give the right answer but no explanation: 5/15.