Sample Questions from Past Qualifying Exams

This list may give the impression that the exams consist of a series of questions fired at the student one after another. In fact most exams have more the character of a conversation with considerable give and take. Hence this list cannot be expected to indicate accurately the difficulties involved.

The list indicates the professor associated to each question where available. Some have been in the MGSA files for a while, and this information has been lost (if it was ever there).

The listing by section is approximate, since some questions may fit under more than one heading.

Semigroups

- Tell us Isbell's Zigzag Lemma, and give some examples. [**Rhodes**]
- Prove the undecidability of the word problems for semigroups. [**Rhodes**]
- Tell us about Lagrange Coordinates on Groups. [**Rhodes**]
- Classify up to isomorphism all semigroups of order 3. [**Rhodes**]
- Prove all finite semigroups are stable.
- Prove all torsion semigroups and all finite J-above semigroups are stable.
- Prove that stable implies $J = D$.
- Can you think of a semigroup for which $J = D$ but which is not stable?