Chemical Engineering 733 Midterm Exam Review

uses of coal & biomass	rank effects on devolatilization
availability of coal & biomass	devolatilization products
coalification	devolatilization processes
coal rank	(tar, crosslinking, metaplast formation, etc.)
geologic formation of coal	effects of T, dT/dt, P, etc. on devolatilization
maceral groups	simple devolatilization models
physical properties of coals	network models (main concepts)
(densities, heat capacities, size distributions)	NMR characterization
chemical structure (coal & biomass)	swelling (solvent swelling vs. change in d _p)
analysis techniques for parent coal	secondary reactions (soot formation)
(NMR, FTIR, depolymerization, etc.)	volatiles combustion
particle energy equation (w/blowing factor)	single particle combustion models
devolatilization rate measurements	lab tour (practical issues)

Important Concepts (not necessarily comprehensive)

The exam will be 1/2 hour. The exam will be closed book and closed notes.