Study Guide for Final, v. 0.8
Note that topics from the midterm may still be covered, but the emphasis will be on later material:

Bloch's theorem, 2 proofs
  Crystal momentum, bands, velocity, Fermi surface
  Density of states, van Hove singularities
Nearly-free electron model
  Gaps, behavior near a Bragg plane, role of structure factor
  Extended, reduced, repeated zone schemes
  Fermi surface and Brillouin zones
  (Not spin-orbit coupling)
Tight-binding model
  LCAO, overlap, overlap integral, general features
  (Not Wannier functions)
  carbon nanotubes
Band structure
  Muffin tin, OPW, pseudopotential; (Not APW, KKR)
Semiclassical electron dynamics
  Equations of motion, consequences of model, holes
  Response to electric field, uniform magnetic field
  Closed orbitals, periods of extremal orbits, effective masses
  Basics of relaxation time approximation; (Not pp. 252-9)
  Landau levels, de Haas-van Alphen; Not "Other Fermi surface probes"
  Band structure of typical metals, esp. simple metals, noble metals
Semiconductors
  Gap, statistics, law of mass action, donor & acceptor levels
Beyond independent electrons
  Hartree, Hartree-Fock, Slater determinant, Slater exchange, exchange, correlation
  Screening, Thomas-Fermi, Lindhard
  Density functional theory, Kohn-Sham eqns., exchange-correlation potential, LDA, GGA
Pauli paramagnetism, rigid-band model (within Sommerfeld model), Stoner criterion
Heisenberg model, magnetic interactions in free electron gas
Spin waves/magnons, magnetic domains & their walls
Work function and its components
Universal curve
Surface relaxations, energies, probes

Types of effective masses
Holes
Gaps
Dependencies on T, m, n, lattice structure, Bravais or not (i.e., basis)