Outline for Final Exam

Outlines for Exams 1 and 2, plus the following:

1. Biot-Savart Law
2. Magnetic force on moving charged particles, right hand rule
3. Magnetic force between two parallel conducting wires
4. Ampere’s Law – long straight wire; toroid; solenoid
5. Faraday’s Law
   - induced emf
   - Lenz’s law
   - motional emf
6. Curl:
   - notation
   - definition in terms of partial derivatives
   - geometric perspective involving rotational tendencies
   - significance of magnitude and direction
   - theorem connecting curl with conservative vector fields and path independence of line integrals
7. Stokes’ Theorem:
   - statement
   - use of
   - correspondence between orientation of curves and surfaces
   - informal perspective on why it’s true
8. Maxwell’s equations (in integral form only)
9. Green's Theorem
   - statement
   - use of