

Review for Final Exam

☐ Responsible for:

- Chapters 13-18, 19.2, 23(7-9), S3
- Notes from class
- Problems worked in class
- Homework assignments

☐ Test format:

- 9 problems (10 points each)
- 1 bonus problem (5 points)
- 4 conceptual questions (10 points total)
- Time: 3 hours

☐ Test materials:

- Pencil, eraser, and non-programmable calculator
- No formulae sheet or paper; all provided
- Closed textbook and notes

Material Covered (since test 3)

❑ Chapter 17: Magnetic fields (1-8, 10-11)

- Biot-Savart Law for moving charge and currents
- microscopic description of current, conventional current
- magnetic field for current distributions (wire, loop)
- magnetic dipole moment
- magnetic dipole moment of atoms
- orbital and spin angular momentum of electrons
- magnetic domains in materials

❑ Chapter 18: Electric Fields in Circuits

- electric fields via surface charges in wires
- Kirchhoff's loop law
- ideal batteries and emf
- electric potential around a circuit

Material Covered (since test 3)

- Chapter 19: Circuit Elements (19.2)
 - Ohm's law (two forms)
 - current density
 - conductivity, resistivity and resistance