

Review Sheet for Comprehensive Exam #3

*Crossed-through material skipped due to weather and illness this year

I. Electrostatics

A. Point Charges

1. Net force from several q 's
2. E field from multiple q 's
3. Electric potential from multiple q 's

B. Electro-mechanics

1. Get "a" from $F = ma = qE$
2. Get " v_f " from $-q\Delta V = \Delta KE$

C. Point charges and parallel plates

1. Point charge moving linearly from one plate to another
- ~~2. Point charge in parabolic motion between plates~~

II. Circuits

A. Resistor Circuits

1. Pure series
2. Pure parallel
3. Combination circuits

~~B. Capacitor Circuit single capacitor with single battery~~

~~C. RC Circuits~~

- ~~1. Initial values for I and V~~
- ~~2. Final, steady state values for I and V~~
- ~~3. Discharging values~~

III. Magnetism

A. Charge particle moving in a B field

1. Mass Spectrometer
- ~~2. Velocity Selector~~

B. Magnetic field from long, parallel currents

~~C. Force between parallel currents~~

D. Historical Figures

1. Franklin
2. Gauss
3. Oersted
4. Ampere
5. Faraday
6. Maxwell

This test will consist of eight problem sets containing 4 questions with each set. Two or three of the four questions will be numerical in nature requiring the use of a calculator. The remainder will be conceptual requiring knowledge of physics that is more verbally analytical in nature. You will be given 55 minutes to give answers to your best six sets leaving two complete sets blank. Failure to comply will result in a penalty.