PHY232

Final Review Sheet

Old material:

There will be (approximately) three free-response questions based upon the older material: electric forces, fields, and potential; circuits (including concepts of power as well as RC, LR, and LC circuits); and magnetic fields, forces, and source along with induced currents, emfs, and inductors. The material covered on each test through the semester was intended to highlight the important points of that section. As such, I will try to draw out such main points again on the cumulative portion of the final exam. I will not simply pull problems off of old tests and have you repeat them on the exam; however, the problems on the final will be similar in style and emphasis.

As for multiple choice, there will be some questions from old material. I'll try, once again, to emphasize the important points, but there will likely be more breadth in the material covered for these questions.

E-M radiation:

Work through all examples done in lecture. Also, see Ex. 34.3 (p. 962).

Understand the relationship between $\vec{E}$ and $\vec{B}$ in an e-m wave (i.e., relationship spatially and in magnitude). Review the Poynting vector.

Reflection and refraction:

Work through all examples done in lecture. Also, see Ex. 35.2 (p. 983), Ex. 35.3 (p. 988), Ex. 35.4 (p. 989), Ex. 35.5 (p. 990), and Ex. 35.6 (p. 994).

The reflection and refraction questions require knowledge of the reflection law and Snell's law in addition to some simple geometry (we only needed geometry involving planar surfaces). So, know the qualitative behavior of

light and be able to apply the reflection/refraction laws for simple geometries (rectangles, triangles, etc.). Review total internal reflection.

Planar and spherical mirrors; thin lenses:

Work through all examples done in lecture. Also, see Ex. 36.3 (p. 1015), Ex. 36.4 (p. 1017), Ex. 368 (p. 1025), and Ex. 36.9 (p. 1026).

Know all the jargon associated with images formed by mirrors and lenses, and know how to extract all of this info from the mirror/thin lens equation as well as the magnification equation. Definitely know how to trace all three principal rays for spherical mirrors and thin lenses. Work through the relevant homework problems.

Interference and diffraction:

Work through all examples done in lecture. See also Ex. 37.1 (1055), Ex. 37.2 (1056), and (if we get through diffraction) Ex. 38.1 (1080).

There will be a couple of multiple choice questions based upon the interference of light (and diffraction, if we get through the material tomorrow). Know the concepts, and understand the few equations for these topics.