

Study Guide for Test 4

Chapter 27 - Special Relativity

Concepts: Inertial Frame of Reference, Galilean Velocity Addition, Einstein's Postulates, Time Dilation, Length Contraction, Mass Increase, Twin Paradox, Relativistic Velocity Transformation, General Relativity, Spacetime

Figures: 2, 5, 20

Examples: 1, 2, 3, 4

MC Questions: 1, 2, 3, 4, 5, 6, 8, 10, 11, 12, 13, 14

Basic Problems: 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 19, 20

Medium Problems: 14, 15, 17, 37, 38

Chapter 28 - Quantum Physics

Concepts: BlackBody Radiation, The UltraViolet Catastrophe, The Photoelectric Effect, Line Spectra, Energy Levels, Bohr Atom, Rutherford's Experiment, X-Rays, X-Ray Production, Wave nature of particles, Electron Diffraction, Uncertainty Principle, Electron Microscope.

Figures: 1, 3, 5, 6, 7, 8, 9, 11, 12, 14, 15, 17, 20, 21, 22

Examples: 2, 3, 7, 10, 11

MC Questions: 1, 2, 3, 4, 5

Basic Problems: 1, 2, 3, 4, 5, 7, 8, 9, 10, 4, 41, 46

Medium Problems: 6, 11, 12, 13, 47, 49, 51, 52, 55

Bonus Question/Problem: Time Dilation Derivation (including a diagram)

The Test will be given on Tuesday May 11, 2009.