

Test 4 for 180B Fall 2008
Test Date: Friday, Dec. 12 at 1 pm
120 Points updated December 10, 2008

10 MC Questions (60 points - 6 pts @)

(I can rearrange words or numbers. Don't memorize them understand them)
I will provide 13 questions you will answer only 10! No extra credit.

5 Problem Calculations (60 points - 12 pts @)

I will give partial credit for correct work shown.
I will provide 8 problems, you will solve only 5! No extra credit.

Chapter 27 - Special Relativity

- 1 How did Inertial Frames of Reference enter the into Einstein's Theory of Relativity? And, how did this effect the speed of light?
- 2 What led Einstein and others toward the realization that time was not absolute?
- 3 What is the Twin Paradox? Why is it a paradox---not a paradox?
- 4 In the video, Mechanical Universe, how did Michelson and Morley try to discover the Aether.
- 5 In the video, Elegant Universe, gravity is explained. What is gravity? How is Einstein's view of gravity different than the view proposed by Newton?

My Problems A, 7, 32 (on the website)

MC Questions: 4, 6, 10, 11, 12

Problems: [4, 5, 7, 8, 9], [11, 12, 13, 14, 15], [16, 17, 18, 19, 20], [37, 38, 40, 45]

Chapter 28 - Photons Electrons and Atoms

- 1 Why is Classical Physics so much different than Quantum Physics?
- 2 What were the three experiments that brought an end to the Classical world-view?
- 3 Explain Blackbody Radiation, Photoelectric Effect, Line Spectra and the Compton Effect.
- 4 How was the nucleus discovered?
- 5 What's wrong with the Bohr Model of the atom?
- 6 What is the wave-particle duality?

Figures: PE, LS, CE, 28.5, 6, 8, 9, 11, 12, 17, 20, 22

Fire!, The Physics of Fireworks, A microscopic muncher, Boron-Neutron Capture Therapy

MC Questions: 1, 2

Problems [1, 2, 4, 7, 8, 10, 11, 13, 15], 40, 49, ~~51~~, 52 you can do these use the uncertainty principle.

Chapter 30 - Nuclear and High Energy Physics

Figures: 6, 7, 10,

MC Questions: 1, 3, 4, 6, 7, 11

Problems: 1, 4, 5, 6, 9, 10, 13, 14, 15, 16, 17, 25, 27, 29, 55, 57, 58, 62

I will supply all necessary equations.