PHYSICS 115 MATERIAL IN OLD PHYSICS 111 EXAMS

Here is a guide if you are looking for practice questions in the old Physics 111 tests.
Look at the bottom of the document for a short summary.

Greyed out text is material NOT covered in Physics 115

Lecture	Date	Sections to be Covered	
1	W 05 Sep		Introduction to course
2	F 07 Sep	1.1.	The Nature of Physics
			Math Quiz
	M 10 Sep		Math review: Algebra
3		1.2.	Units
		1.3.	The Role of Units in Problem Solving
			The Scientific Method
4	W 12 Sep		The Scientific Method (cont'd)
		1. MECHANICS	
		2.1.	Displacement
		2.2.	Speed and Velocity
5	F 14 Sep	2.3.	Acceleration
		2.4.	Equations of Kinematics for Constant Acceleration
6	M 17 Sep	2.5.	Applications of the Equations of Kinematics
		2.6.	Freely Falling Bodies
		2.7.	Graphical Analysis of Velocity and Acceleration for ...
7	W 19 Sep	1.4.	Trigonometry
		1.5.	The Nature of Physical Quantities: Scalars and Vectors
		1.6.	Vector Addition and Subtraction
8	F 21 Sep	1.7.	The Components of a Vector
		1.8.	Addition of Vectors by Means of Components
		3.1.	Displacement, Velocity and Acceleration
9	M 24 Sep	3.2.	Equations of Kinematics in Two Dimensions
		3.3.	Projectile Motion
10	W 26 Sep	4.1.	The Concepts of Force and Mass
		4.2.	Newton's First Law of Motion
		4.3.	Newton's Second Law of Motion
11	F 28 Sep	4.4.	The Vector Nature of Newton's Second Law of Motion
		4.5.	Newton's Third Law of Motion
		4.6.	Types of Forces: An Overview
12	M 01 Oct	4.7.	The Gravitational Force
		4.8.	The Normal Force
13	W 03 Oct	4.9.	Static and Kinetic Frictional Forces
		4.10.	The Tension Force
14	F 05 Oct	4.11.	Equilibrium Applications of Newton's Laws of Motion
		4.12.	Nonequilibrium Applications of Newton's Laws of Motion

Lecture	Date	Sections to be Covered	
***	M 08 Oct		*(University closed – Thanksgiving Day)*
15	W 10 Oct	5.1.	Uniform Circular Motion
		5.2.	Centripetal Acceleration
		5.3.	Centripetal Force
		5.4.	Banked Curves

Phys 111: TEST 1: CHAPTERS 1 THROUGH 4

(corresponds to Chapters 1 through 4 in Giambattista text)

16	F 12 Oct	5.5.	Satellites in Circular Orbits
		5.6.	Apparent Weightlessness and Artificial Gravity
17	M 15 Oct	5.7.	Vertical Circular Motion
		6.1.	Work Done by a Constant Force
		6.2.	The Work-Energy Theorem and Kinetic Energy
18	W 17 Oct	6.3.	Gravitational Potential Energy
		6.4.	Conservative Forces, Nonconservative Forces, and …
		6.5.	The Conservation of Mechanical Energy
19	F 19 Oct	6.6.	Nonconservative Forces and the Work-Energy Theorem
		6.7.	Power
		6.8.	Other Forms of Energy and the Conservation of Energy
20	M 22 Oct	7.1.	The Impulse-Momentum Theorem
		7.2.	The Principle of Conservation of Linear Momentum
21	W 24 Oct	7.3.	Collisions in One Dimension
22	F 26 Oct	7.3.	Collisions in One Dimension (cont'd)
		7.4.	Collisions in Two Dimensions
		8.1.	Rotational Motion and Angular Displacement
		8.2.	Angular Velocity and Angular Acceleration
23	M 29 Oct	8.3.	The Equations of Rotational Kinematics
		8.4.	Angular Variables and Tangential Variables
		8.5.	Centripetal Acceleration and Tangential Acceleration
24	W 31 Oct	8.6.	Rolling Motion
		9.1.	The Effects of Forces and Torques on the Motion ...
25	F 02 Nov	9.2.	Rigid Objects in Equilibrium
26	M 05 Nov	9.4.	Newton's Second Law for Rotational Motion About a …
27	W 07 Nov	9.5.	Rotational Work and Energy
		9.6.	Angular Momentum
28	F 09 Nov	10.1.	The Ideal Spring and Simple Harmonic Motion
***	M 12 Nov		*(University closed – in lieu of Remembrance Day)*
29	W 14 Nov	10.2.	Simple Harmonic Motion and the Reference Circle
30	F 16 Nov	10.3.	Energy and Simple Harmonic Motion

TEST 2: CHAPTERS 5 THROUGH 9

(corresponds to Chapters 5, 6, 7 in Giambattista text)

31	M 19 Nov	10.4.	The Pendulum
		11.1.	Mass Density
		11.2.	Pressure
32	W 21 Nov	11.3.	Pressure and Depth in a Static Fluid

Lecture	Date	Sections to be Covered	
		11.4.	Pressure Gauges
		11.5.	Pascal's Principle
33	F 23 Nov	11.6.	Archimedes' Principle
		11.7.	Fluids in Motion
		11.8.	The Equation of Continuity
34	M 26 Nov	11.9.	Bernoulli's Equation
		11.10.	Applications of Bernoulli's Equation
35	W 28 Nov	11.11.	Viscous Flow
		2. WAVE MOTION	
		16.1.	The Nature of Waves
36	F 30 Nov	16.2.	Periodic Waves
		16.3.	The Speed of a Wave on a String
		16.4.	The Mathematical Description of a Wave
37	M 03 Dec	16.5.	The Nature of Sound
		16.7.	Sound Intensity
		16.8.	Decibels
38	F 04 Jan	16.9.	The Doppler Effect
39	M 07 Jan	16.10.	Applications of Sound in Medicine
		16.11.	The Sensitivity of the Human Ear
		17.1.	The Principle of Linear Superposition
		17.2.	Constructive and Destructive Interference of Sound Waves
40	W 09 Jan	17.4.	Beats
		17.5.	Transverse Standing Waves
41	F 11 Jan	17.6.	Longitudinal Standing Waves
42	M 14 Jan	17.7.	Complex Sound Waves
		3. ELECTRICITY AND MAGNETISM	
		18.1.	The Origin of Electricity
		18.2.	Charged Objects and the Electric Force
		18.3.	Conductors and Insulators
43	W 16 Jan	18.4.	Charging by Contact and by Induction
		18.5.	Coulomb's Law
44	F 18 Jan	18.6.	The Electric Field
45	M 21 Jan	18.6.	The Electric Field (cont'd)
		18.7.	Electric Field Lines
46	W 23 Jan	19.1.	Potential Energy
		19.2.	The Electric Potential Difference
		TEST 3: CHAPTERS 10 THROUGH 18	
		(corresponds to Hooke's Law, Elastic Potential Energy, and Chapter 16 in Giambattista text)	
47	F 25 Jan	19.3.	The Electric Potential Difference Created ...
48	M 28 Jan	19.4.	Equipotential Surfaces and Their Relation to the ...
		20.1.	Electromotive Force and Current
49	W 30 Jan	20.2.	Ohm's Law
		20.3.	Resistance and Resistivity

Lecture	Date	Sections to be Covered	
50	F 01 Feb	20.4.	Electric Power
		20.5.	Alternating Current
51	M 04 Feb	20.6.	Series Wiring
		20.7.	Parallel Wiring
52	W 06 Feb	20.9.	Internal Resistance
53	F 08 Feb	20.14.	Safety and the Physiological Effects of Current
		21.1.	Magnetic Fields
		21.2.	The Force That a Magnetic Field Exerts on a Moving ...
54	M 11 Feb	21.3.	The Motion of a Charged Particle in a Magnetic Field
		21.4.	The Mass Spectrometer
		4. LIGHT AND OPTICS	
55	W 13 Feb	24.1.	The Nature of Electromagnetic Waves
		24.2.	The Electromagnetic Spectrum
56	F 15 Feb	24.3.	The Speed of Light
		25.1.	Wave Fronts and Rays
		25.2.	The Reflection of Light
		26.1.	The Index of Refraction
		M 18 to F 22 Feb – Midterm Break – no classes	
57	M 25 Feb	26.2.	Snell's Law and the Refraction of Light
		26.3.	Total Internal Reflection
58	W 27 Feb	26.5.	The Dispersion of Light: Prisms and Rainbows
		26.6.	Lenses
		26.7.	The Formation of Images by Lenses
59	F 29 Feb	26.8.	The Thin-Lens Equation and the Magnification Equation
		26.9.	Lenses in Combination
60	M 03 Mar	26.10.	The Human Eye
61	W 05 Mar	26.11.	Angular Magnification and the Magnifying Glass
		26.12.	The Compound Microscope
		26.13.	The Telescope
		TEST 4: CHAPTERS 19 THROUGH 26.9	
		(corresponds to Chapters 17, 18, 19 in Giambattista text)	
62	F 07 Mar	26.14.	Lens Aberrations
		27.1.	The Principle of Linear Superposition
		27.2.	Young's Double-Slit Experiment
63	M 10 Mar	27.7.	The Diffraction Grating
		5. MODERN PHYSICS (corresponds to Chapter 27 in Giambattista text)	
		29.1.	The Wave-Particle Duality
		29.2.	Blackbody Radiation and Planck's Constant
		29.3.	Photons and the Photoelectric Effect
64	W 12 Mar	29.3.	Photons and the Photoelectric Effect (cont'd)
65	F 14 Mar	29.4.	The Momentum of a Photon and the Compton Effect

Lecture	Date	Sections to be Covered	
66	M 17 Mar	30.1.	Rutherford Scattering and the Nuclear Atom
		30.2.	Line Spectra
		30.3.	The Bohr Model of the Hydrogen Atom
67	W 19 Mar	30.3.	The Bohr Model of the Hydrogen Atom (cont'd)
		30.7.	X-rays
***	F 21 Mar		*(University closed – Good Friday)*
68	M 24 Mar	30.8.	The Laser
69	W 26 Mar	31.1.	Nuclear Structure
		31.2.	The Strong Nuclear Force and the Stability of the Nucleus
		31.3.	The Mass Defect of the Nucleus and Nuclear Binding ...
70	F 28 Mar	31.4.	Radioactivity
71	M 31 Mar	31.5.	The Neutrino
		31.6.	Radioactive Decay and Activity
72	W 02 Apr	31.6.	Radioactive Decay and Activity (cont'd)
		31.7.	Radioactive Dating
73	F 04 Apr	31.8.	Radioactive Decay Series
		31.9.	Radiation Detectors
		32.1.	Biological Effects of Ionising Radiation
74	M 07 Apr	32.2.	Induced Nuclear Reactions
		32.3.	Nuclear Fission
		32.4.	Nuclear Reactors
		32.5.	Nuclear Fusion

SUMMARY

Giambattista Chapters 1-4: Look at Phys 111 test 1
Giambattista Chapters 5-9: Look at Phys 111 test 2
Hooke's Law, Elastic Potential Energy, and Chapter 16 in Giambattista: Look at Phys 111 test 3
Giambattista Chapters 17, 18, 19: Look at Phys 111 test 4
Giambattista Chapter 27: Look at Phys 111 final exams