

Thursday, June 6/13
Science 122

Announcements

**** Need an activity re a course topic before the end of May.**

1. Check: Quiz - Electrochemistry
2. Activities:
 - Lucas - Linear Thermal Expansion
 - Mike N - Bernoulli - Flowing Fluids
 - Jennifer - Optics
 - Mike C - Exam Jeopardy
 - Safwaan - Magnetism
 - Kurtis - Exam Jeopardy
 - Kathleen - Viscosity/Archimedes

Email

Sunday
6:00 pm

3. Answer Keys

Worksheets (3) - Redox Tables, Predicting Entities and Predicting Redox Reactions

Redox Reactions and Titrations - 3 Lab Exercises

Page 433, Exercise 46 (a-g)

4. Questions re Exam?
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Science 122

MC \rightarrow 20

Prob \rightarrow 12

\rightarrow magnetism (\vec{E}/\vec{B} , single charged particle, EMF)

\rightarrow hydrostatic (Σ , Pascal, Archimedes)

\rightarrow hydrodynamic

\rightarrow double lens

\rightarrow activity/decay

\rightarrow energy levels

\rightarrow k_{max} , Φ , etc.

\rightarrow heat engine

\rightarrow redox & titration (p. 610)

\rightarrow redox \rightarrow oxidation #'s.

1 Req Diagram.

1 Chart-Thermodynamics

-1 instructions

Exam: Outline - Electrochemistry

- electrochemistry
- oxidation and reduction
- oxidizing agents and reducing agents
- half-reactions
- balanced net ionic equations
- Table of Redox Half Reactions (Page 610)
- determining the spontaneity of redox reactions (using page 610)
- redox titrations
- oxidation numbers
- balancing redox reactions using oxidation numbers

Exam: Outline - Fluid Mechanics

- fluid mechanics
- hydrostatics
 - mass density
 - specific gravity
 - pressure
 - hydrostatic pressure equation✓
 - gauge pressure
 - pressure gauges (open-tube manometer)
 - Pascal's Principle
 - Archimedes's Principle
 - buoyant force
 - hanging and submerged objects
 - apparent weight
- hydrodynamics
 - steady (streamline)/unsteady flow
 - compressible/incompressible flow
 - viscous/non-viscous flow
 - mass flow rate
 - continuity equation
 - volume flow rate
 - Bernoulli's Equation

Exam: Outline - Nuclear and Quantum Physics

- atom, nucleons (protons and neutrons) and electrons
- isotopes, nuclides, notation (mass number/atomic number)
- radioactive decay (alpha, beta, gamma)
- half-life, activity, decay constant
- electron-volt
- Planck: quantization of energy
- Einstein: photons and photoelectric effect (work function, cut-off frequency)
- wave-particle duality, deBroglie wavelength
- Bohr: atomic structure, energy level diagrams

Exam: Outline - Thermodynamics

- thermodynamics
- thermal expansion
- Boyle's Law, Charles's Law, Combined Gas Law
- Ideal Gas Law
- Kinetic Theory of Gases (internal energy and kinetic energy)
- Laws of Thermodynamics (0th, 1st, 2nd, 3rd)
- thermal processes (isobaric, isochoric, isothermal, adiabatic)
- heat engines and efficiency
- Carnot's Principle and Engine

Exam: Outline - Optics

- Law of Reflection
- Snell's Law (Refraction)
- Plane Mirror: ray diagram and POST
- Spherical Mirrors:
 - concave (converging) and convex (diverging)
 - labelled ray diagrams and POST
 - mirror and magnification equations (sign conventions)
 - fun house mirrors
- Lenses:
 - index of refraction
 - convex (converging) and concave (diverging)
 - labelled ray diagrams and POST
 - lens and magnification equations (sign conventions)
 - double lens problems

Exam: Outline - Magnetism

- magnetism
- magnetic domains
- magnetic field lines (N \rightarrow S)
- RHR/LHR's #1, 2 and 3
- symbols: in and out of page
- parallel wires
- electric motor: decide direction of armature or I
- force acting on a straight wire
- force acting on a single charged particle
- radius of a single particle in a uniform magnetic field
- velocity selector (perpendicular B and E fields, v)
- mass spectrometer (q to m ratio)
- electromagnetic inductance
- Lenz's Law
- EMF
- Ohm's Law
- self-inductance and mutual inductance
- transformers (primary and secondary coils, turns ratio, power)