

GS331 Oceanography Quiz 1 Study Guide - Fall 2002

RECOMMENDED STUDY TECHNIQUES

- 1) review the "How to Study Physical Science" guide available on the web site.
- 2) use the concepts below as a guide to help you focus on your notes
- 3) memorize terms and concepts (make flash cards, rewrite definitions 100 times, etc.)
- 4) go back over the labs and make sure you can do the tricks / skills
- 5) review some of the important figures in your lab manual and text
- 7) be able to link the terms to concepts, and the concepts to Earth processes
- 8) go over the lab exercise answer keys posted on the web site, check your lab work
- 9) change your socks and drink plenty of water
- 10) clean your room....
- 11) Go to the class website and view all notes, answer keys, and material currently available

I would spend a MINIMUM of 3-4 hours studying for this quiz... if I wanted to do well!

Key Words for New Material Since Mid-Term

Introduction to Earth Systems

age of Earth	force	deep sea drilling
Earth history	work	
astronomy	thermal energy	
geology	thermodynamics	
meteorology	heat flow	
oceanography	conservation of energy	
geosphere	potential energy	
lithosphere	kinetic energy	
outer core	system	
inner core	closed system	
mantle	open system	
atmosphere	isolated system	
gaseous envelope	positive feed back	
atmospheric composition	negative feed back	
hydrosphere	energy flux	
hydrologic cycle	mass flux	
evaporation	solar energy	
advection	geothermal energy	
transpiration	photosynthesis	
precipitation	tidal energy	
groundwater	energy transformation	
surface water	albedo	
basic earth facts	gravity	
rotational period	acceleration due to gravity	
revolutional period	Newton's second law	
matter	hydrologic cycle	
energy	history of ocean exploration	

Physics Review

mass
length
time
temperature
force
kg, m, newton
angle
area
volume
(know all units)
Energy
force
pressure
density
work
heat
heat flow
heat flux
heat expansion
heat contraction
solid
liquid
gas
heat transfer
conduction
convection
radiation
heat gain
heat loss
evaporation
freezing
condensation
sublimation
conservation of mass
conservation of energy
newtons' 2nd law
properties of water
heat capacity
fluidity
viscosity
density
salinity
bipolar molecule
temp. vs. density
temp vs. viscosity
bouyancy

buouant force
gravitational force
"sinker" vs. "floater"
Archimede's Principle
upward force vector
downward force vector
density vs. buoyancy

Maps and Charts

sonar
 $v = d/t$
two-way travel time
bathymetry
contour lines
isobaths
magnetic north
magnetic declination
true north
longitude
latitude
equator
prime meridian
greenwich
degrees, minutes, seconds
north / south pole
fathom
feet, meters
map scale
fractional scale
vertical exaggeration
contour pattern
slope of ocean floor
contour maps
profiles

Intro to Geology / Tectonics

seafloor spreading
mid-oceanic ridge
basalt
sediment
sand, gravel, mud
biogenic sediment
microscopic organisms
volcanic rocks
volcanic eruption

sedimentary rocks
limestone
lithogenic sediment
chemical sediment
plate tectonics
convergent
divergent
transform
Atom
Molecule
Compound
Mineral
Element
Rock
Rock Types
 Igneous
 e.g. basalt
 e.g. granite
 Sedimentary
 e.g. sandstone
Magma
Lava
Weathering
Sediment
Erosion
Sediment Transport
Deposition
Lithification
 Cementation
Crust
 Oceanic
 Continental
Lithosphere (Plate)
 Crust
 Upper Mantle
Asthenosphere
 Silly Putty
Deep Mantle
Outer Core
Inner Core
Plate Tectonics
Plate Boundaries
 Convergent
 Divergent
 Transform
Convergent
 Subduction
 Trench

- Volcanic Arc
 - (e.g. Cascades)
- Plate Destruction
- Divergent
 - Seafloor Spreading
 - Mid-Oceanic Ridge
 - Plate Creation
- Transform
 - Fault
 - e.g. San Andreas
 - e.g. Offset Mid-Ocean Ridge
- Continental Drift
- Jig-Saw Fit of Continents
 - Pangaea
 - Match-up of Fossils
 - Match-up of Geology
- Modern Evidence
 - Paleomagnetism
 - Seafloor Stripes
 - Polar Wandering
 - Normal Polarity
 - Reverse Polarity
- Hot Spots
 - Hot Spot Tracks
 - Hawaiian Islands
 - Emperor Seamount
 - Seamounts
 - Volcanic Islands
- Subduction Zone Types
 - Oceanic-Oceanic
 - e.g. Japan
 - Oceanic-Cont.
 - e.g. Cascades
 - Cont.-Cont.
 - e.g. Himalayas
- Plate Motion Rates
 - 1-10 cm/yr
- Plate Driving Mechanism
 - Internal Heat
 - Radioactive Source
 - Heat Exchange
 - Mantle Convection
 - Convection cells
 - rising hot rock
 - sinking cool rock

Key Concepts / Skills

Understand the basic interaction between the ocean and the atmosphere (from video 1 we watched).

Understand the hydrologic cycle, be able to sketch it.

Be able to draw bathymetric maps

Be able to draw a profile and determine the vertical exaggeration.

Be able to read a marine map, determine directions, located positions in long. and lat.

Can you solve basic physics problems / equations if given data? Convert Units?

What are the reasons that ocean water circulates?

What density and salinity contrasts would you observe at various positions in the ocean? Why?

How does salinity and density relate to ocean circulation?

Why is the second law of thermodynamics important for ocean processes?

What are the fundamental driving forces of ocean processes? How do they influence the ocean?

Can you determine the rates of plate spreading given paleomagnetic data?