

GEOGRAPHY 1710

EXAM 1 REVIEW

SPRING 2006

OBJECTIVES

- **CHAPTER 1**
- Define geography and physical geography in particular.
- Describe systems analysis, open and closed systems, feedback information, and systems operations and relate those concepts to Earth systems.
- Explain Earth's reference grid: latitude, longitude, latitudinal geographic zones, and time.
- Define cartography and mapping basics: map scale and map projections.
- Describe remote sensing and explain geographic information system (GIS) methodology as a tool used in geographic analysis.
- **CHAPTER 2**
- Distinguish among galaxies, stars, and planets, and locate Earth.
- Overview the origin, formation, and development of Earth and construct Earth's annual orbit about the Sun.
- Describe the Sun's operation and explain the characteristics of the solar wind and the electromagnetic spectrum of radiant energy.
- Portray the intercepted solar energy and its uneven distribution at the top of the atmosphere.
- Define solar altitude, solar declination, and day length, and describe the annual variability of each--Earth's seasonality.
- **CHAPTER 3**
- List the stable components of the modern atmosphere and their relative percentage contributions by volume and describe each.
- Describe conditions within the stratosphere; specifically, review the function and status of the ozonosphere (ozone layer).
- Distinguish between natural and anthropogenic variable gases and materials in the lower atmosphere.
- Identify the pathways of solar energy through the troposphere to the Earth's surface: transmission, scattering, diffuse radiation, refraction, albedo (reflectivity), conduction, convection, and advection.
- Describe what happens to insolation when clouds are in the atmosphere and analyze the effect of clouds and air pollution on solar radiation received at ground level.
- Review the energy pathways in the Earth-atmosphere system, the greenhouse effect, and the patterns of global net radiation.
- Portray typical heat island conditions, and contrast the microclimatology of urban areas with that of surrounding rural environments.
- Define the concepts of temperature.
- List and review the principal controls and influences that produce global temperature patterns.
- Review the factors that produce different marine effects and continent effects as they influence temperatures and utilize several pairs of stations to illustrate these differences.
- **CHAPTER 4**
- Define the concept of air pressure and describe instruments used to measure air pressure.
- Define wind and describe how wind is measured, how wind-direction is determined, and how winds are named.
- Explain the four driving forces within the atmosphere--gravity, pressure gradient force, Coriolis force, and friction force--and describe the primary high- and low-pressure areas and principal winds.
- Describe upper-air circulation and its support role for surface systems and define the jet streams.
- Explain several types of local winds: land-sea breezes, mountain-valley breezes, katabatic winds, and the regional monsoons.
- Discern the basic pattern of the Earth's major surface and deep ocean currents
- **CHAPTER 6**
- Define the concept of air pressure and describe instruments used to measure air pressure.
- Define wind, and describe how wind is measured, how wind direction is determined, and how winds are named.
- Explain the four driving forces within the atmosphere -- gravity, pressure gradient force, Coriolis force, and friction force -- and describe the primary high- and low-pressure areas and principal winds.
- Describe upper-air circulation and its support role for surface systems, and define the jet streams.
- Overview several multiyear oscillations of air temperature, air pressure, and circulation in the Arctic, Atlantic, and Pacific oceans.

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- Discern the basic pattern of the Earth's major surface ocean currents and deep thermohaline circulation.

Terms

advection.	Global Positioning	Positive/negative
convection.	System	feedback
conduction.	Time zones	spatial science
transmission.	centrifugal force	perihelion/aphelion
Diffusion	Remote sensing	map scale
Earth's energy	A.M./P.M.	loss of ozone
Mirages	Sunrise	photochemical smog
Earth's rotation	Seasons	Clean Air Act
Microclimatology	Earth's rotation	Temperature inversions
Evaporation	Milky Way	Air
Photosynthesis	Sun's energy	great circle
Earth's atmosphere	Earth's distance from	latent heat
Lewis Thomas	the sun	diffuse radiation
harmful radiation	Short/long wavelengths	friction
oxides of sulfur and	Solstice	Intertropical
nitrogen	Equinox	Convergence Zone
nitrogen	Jet Stream	Upwelling/downwelling currents
oxygen	Earth's axis	Local winds
normal lapse rate	plane of the ecliptic	monsoons
atmosphere	Coriolis force	katabatic winds
composition	Auroras	mountain breezes
atmosphere function	thermohaline	sea breeze
atmosphere	circulation	cyclone/anticyclone
temperature	latitude/longitude	Wind
insolation	albedo	Pressure gradient
gyre	satellite imaging	Wind measurement
		Ocean circulation

Typical Question

6. Northern Australia is most likely to experience its monsoon rains during July and August.
- a. true b. false