

American University of Beirut
Environmental Physical Geography
Geology 102
Final Exam

June, 10th, 2000

Student's name: _____

Part I

Choose the best answer (4 pts each, total 48 pts):

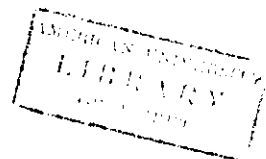
1. On the Fahrenheit scale, the water boils at:
 - a. 273 degrees
 - b. 212 degrees
 - c. 32 degrees
 - d. minus 459.4 degrees

2. The minerals made of metals combined with chlorine, fluorine and iodine are:
 - a. halides
 - b. sulfides
 - c. carbonates
 - d. sulfates

3. The proportion of water vapor present in a parcel of air relative to the maximum amount of water vapor that air could hold at the same temperature is:
 - a. relative humidity
 - b. specific humidity
 - c. mixing ratio
 - d. dew point

4. The climate type with at least one month greater than 10°C and the coldest month between 18°C and 0°C is:
 - a. mesothermal
 - b. tropical
 - c. microthermal
 - d. polar

5. The study of the width of the annual growth rings of the trees is:
 - a. varves
 - b. dendrochronology
 - c. cryosphere
 - d. isotopes



6. Amongst the three climate types mentioned, the one that receives the smallest amount of heat is the:
- the A climate
 - the C climate
 - the D climate
7. The B climates are located:
- on the eastern sides of the continents
 - equatorward of the A climates
 - poleward of the A climates
 - only in the central part of the continents
8. The ideal climate classification system should:
- differentiate among all the major climate types
 - demonstrate the controls that cause any particular climate
 - apply to the whole world
 - all of the above
 - none of the above
9. The geosynchronous orbits of satellites are related to those:
- survey a different meridional segment during each revolution
 - placed at about 1,100 km high
 - placed at around 35,000 km above the equator
 - assemble a complete picture of the globe every few hours
10. When cold air injects itself beneath a lighter warm air, the warm air is lifted and cooled producing:
- an orographic precipitation
 - a frontal precipitation
 - a rain shadow effect
11. Certain mineral could put a scratch into other minerals. This property is called:
- hardness
 - luster
 - cleavage
 - fracture
12. Which of the following is not related to the definition of a mineral:
- organic
 - naturally occurring
 - definite chemical composition
 - crystal structure

Part II.

Answer only 5 of the following 8 questions (10.4 pts each, total 52 pts):

1. Draw and label a model representing the global atmospheric circulation showing the major pressure belts and the airflow between them. The model considers only the pressure difference between the polar and equatorial regions and the rotation of the Earth.
2. Draw and label the generalized pattern of currents in a typical ocean basin. Show on the figure the major circulation cells and their influencing wind systems. Differentiate on the figure the warm currents from the cold ones. Show on the figure both the Northern and the Southern Hemispheres.
3. Discuss the deep-sea currents and show on a map the global deep-sea circulation pattern at a depth of about 4000m. The borders of the continents can be drawn in a simplified (approximate) way.
4. Define a calorie and discuss the physical properties of water. Draw and label a schematic figure showing the three physical states of water. Show on the figure the latent heat-exchange values between the different physical states.
5. Review cloud classification (with a labeled figure).
6. Draw and label a figure showing the life cycle of a thunderstorm.
7. Draw and label a figure showing the variation of annual mean surface temperatures for the world's land areas between 1866-1992.
8. Draw and label a figure showing the four stages in the life cycle of a mid-latitude cyclone.

Notes:

A penalty exists if you answer more than 5 questions in Part II.

Answer Part I on the questionnaire and Part II on the Examination book.