

American University of Beirut  
Department of Geology  
Physical Geology  
Geology 201  
Final Exam

21 Jan. 2006

Student name: \_\_\_\_\_

**Part I**

Choose the best answer (3 pts each if answered correctly, 0 pts if not answered, - pt if wrong; total 33 pts):

1. Which of these minerals have the same chemical composition but different crystal structure:
  - a. calcite & dolomite
  - b. quartz and feldspar
  - c. diamond and graphite
  
2.  $\text{CaCO}_3$  is a:
  - a. sulfate
  - b. sulfide
  - c. carbonate
  - d. halite
  
3. Which of these rocks has the highest silica content:
  - a. basalt
  - b. rhyolite
  - c. andesite
  - d. calcite
  
4. Convection is the heat transfer that allows:
  - a. the hot, less dense material to rise
  - b. the cool surface material to sink
  - c. both of the above
  - d. none of the above
  
5. Indicate which of these minerals is harder than the other three:
  - a. Talc
  - b. Gypsum
  - c. Calcite
  - d. Quartz
  
6. The tendency of a crystal to break along flat planar surfaces is:
  - a. fracture
  - b. crystal habit
  - c. streak
  - d. cleavage

7.

- a. alluvial
- b. continental shelf
- c. desert
- d. lake
- e. glacial

8. Which of these index minerals represent a higher grade of metamorphism:

- a. Chlorite
- b. Sillimanite
- c. Staurolite

9. A small intrusion that is parallel to the surrounding rock is called a:

- a. sill
- b. dike
- c. batholith
- d. stock

10. A thin outer layer of the Earth ranging up to about 40 km in thickness is:

- a. the crust
- b. the mantle
- c. the inner core
- d. the outer core

11. When plates collide and one sinks beneath the other, we have:

- a. a divergent boundary
- b. a convergent boundary
- c. a transform-fault boundary
- d. none of the above

Answer the following short questions **next** to them (2 pts each, total 16 pts):

Give the age of the following:

(in millions of years before present)

(top means: ended at)

(bottom means: started at)

Top Jurassic:

Bottom Silurian:

Top Cambrian:

Bottom Eocene:

Top Permian:

Bottom Jurassic:

Top Oligocene:

Bottom Proterozoic:

## **Part II.**

Answer **only** 4 of the following 5 questions (12 pts each, total 51 pts):

1. Define differentiation. Draw and label the two major steps of differentiation (on two separate globes). Draw and label a figure showing the evolution of the solar system.

2. Draw and label a figure indicating the types of faults. Give for each type of faults the name of the fault type. Indicate with large arrows the direction of the forces applied, and with small arrows the directions of the block movement.
3. Draw and label a classification model of igneous rocks.
4. Draw and label the complete scheme of the rock cycle.
5. Draw and label a detailed figure showing the sedimentary environments. Show clearly for each environment the transport agent, the sediment types, the climate and the organic processes.

**Notes:**

- Time available: 2 hours.
- Put please your mobile off and away from you.
- Any attempt of cheating will be severely penalized.
- Read please very carefully each question before you answer it.
- A penalty exists if you answer more than 4 questions in Part II.
- Write please your name on both the questionnaire sheet and the examination book.
- Answer please Part I on the questionnaire sheets and Part II on the examination book.
- Start please the answer of every new question on a new page of the examination book.
- Use please the last page of the examination book as a scratch. Cross out this page when you finish.
- Do not tear please any sheet of paper out of the examination book, with the risk of canceling the whole exam.