



AMERICAN UNIVERSITY OF BEIRUT
Geology Department
Geol 201(section 2)
Final Exam



January 30, 1997

Student Name: _____

POLICY ON THE EXAM

1. Leave all your belongings (except for pens) far from your place.
2. Be silent, don't look to the sides.
3. Read the questions carefully before answering.
4. Make your answers clear (confused answers will not be considered).
5. If you finish in the last five minutes, remain seated quietly until all the exam papers have been collected.
6. There is no penalty in the first three parts, and concerning part IV answer only two questions.

THANK YOU FOR YOUR COOPERATION

Part I. Choose the best answer (30 pts.)

1. . . . is not a mineral, it is a mixture of several different minerals that differ in amount from sample to sample.

- | | |
|------------|------------|
| a. Quartz | b. Halite |
| c. Granite | d. Calcite |

2. . . . are the most common two elements in the Earth's crust.

- | | |
|-------------------------|-----------------------|
| a. Aluminum and iron | b. Silicon and iron |
| c. Aluminum and calcium | d. Silicon and oxygen |

3. Pyrite and galena are . . . minerals.

- | | |
|--------------|-------------|
| a. sulfide | b. Oxide |
| c. carbonate | d. silicate |

4. One period includes several:

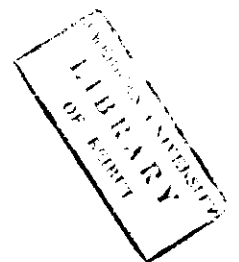
- | | | | |
|-----------|---------|---------|------------|
| a. epochs | b. eras | c. eons | d. systems |
|-----------|---------|---------|------------|

5. The half-life of . . . is 5730 years.

- | | |
|----------------|-----------------|
| a. Uranium 238 | b. Uranium 235 |
| c. Carbon 14 | d. Potassium 40 |

6. Downstream the gradient . . . and the discharge . . .

- | | |
|------------------------------|------------------------------|
| a. increases . . . decreases | b. increases . . . increases |
| c. decreases . . . decreases | d. decreases . . . increases |



7. In . . . channel the water repeatedly divides and reunites as it flows through two or more adjacent but interconnected channels separated by bars or islands.

- a. straight
- b. meandering
- c. braided
- d. curved

8. . . . is a hill or ridge of sand deposited by winds.

- a. Dune
- b. Ventifact
- c. Desert pavement
- d. Yardangs

9. The Sahara (Africa) is a typical . . . desert.

- a. subtropical
- b. rainshadow
- c. coastal
- d. polar

10. . . . stress stretches rocks.

- a. Confining
- b. Shear
- c. Compressional
- d. Tensional

11. In a . . . fault the hanging wall is upthrown.

- a. normal
- b. reverse
- b. c. strike-slip
- d. transform

12. . . . are the cause of most earthquakes in the world.

- a. Volcanic explosions
- b. Landslides
- c. Elastic rebounds
- d. Avalanches

13. . . . waves are faster than . . . waves.

- a. Surface . . . S
- b. Surface . . . P
- c. S . . . P
- d. P . . . S

14. . . . % of the earthquakes in the world occur in the Circum-Pacific belt.

- a. 95
- b. 80
- c. 50
- d. 15

15. The fastest seafloor spreading occurs in . . . ocean.

- a. Arctic
- b. Atlantic
- c. Indian
- d. Pacific

Part II. Fill in the blanks (24 pts.)

1. _____ is a typical example of ionic bonds, whereas in covalent bonds two atoms _____ one or more electrons such as _____ (ex.).

2. Half life is the time required _____
3. The three types of stream load are: 1) _____ 2) _____; and 3) _____ load.
4. _____ is the wholesale removal of loose sand and dust by the wind, whereas _____ is when rock is impacted by the wind-driven grains of sediment.
5. The higher the temperature (rock deformation) the more _____ a solid becomes; quartz and _____ are more brittle than mica and _____.
6. The earthquake focus is _____, whereas the epicenter is _____.
7. Earthquakes occurring along spreading centers are _____.
8. Fore-arc basins (Convergent plate margins) are located between _____ arcs and _____ ridges.

Part III Circle T = true or F= false (15 pts.) and explain why if it is false (5 pts.)

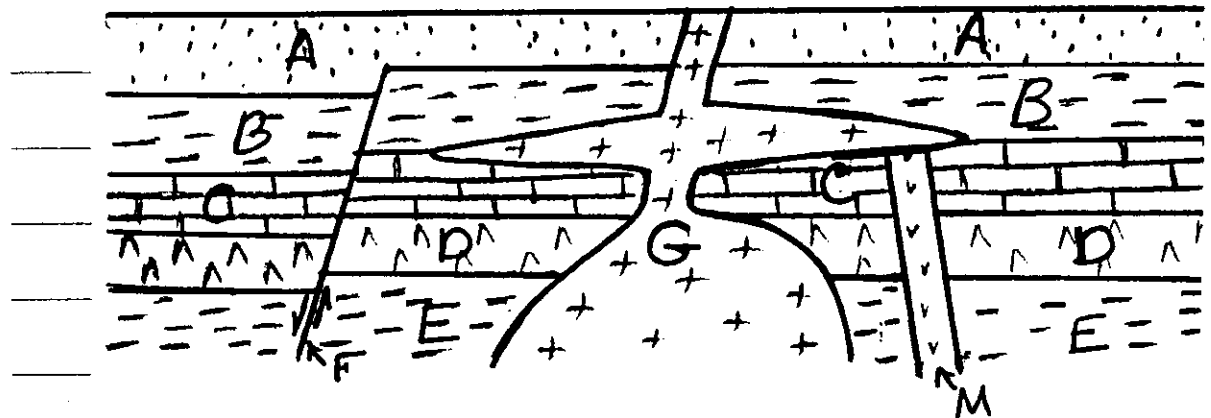
- T F 1. Mineraloids have no crystal structure; or they lack a definite chemical composition (ex. glass and resins).
- T F 2. Quartz mineral makes up 60% of the continental crust; all Oxygen atoms formed by polymerization, but some of them are bonded with Al³⁺ and other cations to balance the 4+ of silicon.
- T F 3. The principle of original horizontality states that in any undisturbed sequence of sedimentary strata, the oldest is at the bottom and overlain by younger beds.
- T F 4. The base level is the limiting level below which a stream cannot erode the land.
- T F 5. Flash floods are sudden swift floods, formed upon rainstorms, that can transport large quantities of sediments.
- T F 6. Strike is the vertical angle between the bedding plane and a horizontal plane.
- T F 7. Slickensides are striated or highly polished surfaces on hard rocks, abraded by movement along a fault.
- T F 8. Upon the propagation of S-shear waves particles move forth and back parallel to the direction of the wave.

T F 9. The ground motion caused by an earthquake of magnitude (Richter) 6 is 100 times more than that caused by an earthquake of magnitude 4.

T F 10. The six large plates on earth are: 1. Pacific, 2. North American, 3. South American, 4. Eurasian, 5. Indo-Australian and 6. Arabian

Part IV. Relative age: put the correct sequence (from older to younger) of the deposition and formation of the rock units in the diagram (6 pts.).

Youngest _____



Oldest _____

F-Fault, G-intrusive igneous rocks, M-mafic dyke

Part V. Answer only two of the following questions:

1. Define the Unconformity and discuss its kinds (draw schemes)
2. Discuss the stream order and draw a stream drainage pattern with a maximum order of 5
3. Drawing their chart discuss the stages of deformation
4. Describe the earthquake damage including primary and secondary.

GOOD LUCK