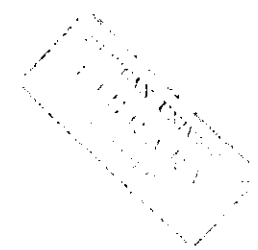


AMERICAN UNIVERSITY OF BEIRUT
Geology Department
Geology 101 (Section 01)
Final Exam

(1)

(1)



February 1, 2000

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. Anyone found cheating will have their paper confiscated.
5. Make your answers clear (**confused answers will not be considered**).
6. If you finish in the **last five minutes**, remain seated **quietly** until all the exam papers have been collected.
7. **There is no penalty** in the first three parts, and concerning part V answer **only two questions**.

THANK YOU FOR YOUR COOPERATION

Part I. Choose the best answer (50 pts.)

1. The . . . is the Earth's outer solid . . . layer, which extends under continents to a depth of 100 km.

- | | |
|------------------------------|----------------------------|
| a. asthenosphere . . . rigid | b. lithosphere . . . rigid |
| c. asthenosphere . . . weak | d. lithosphere . . . weak |
-

2. The maximum age of the . . . is about . . . million years.

- | | |
|--------------------------|-------------------------|
| a. ocean floor . . . 500 | b. continents . . . 500 |
| c. ocean floor . . . 200 | d. continents . . . 200 |
-

3. . . . is the type of stress when the object is squeezed.

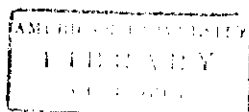
- | | |
|----------------|-------------|
| a. Compressive | b. Tensile |
| c. Extensional | d. Shearing |
-

4. Only . . . lithosphere undergoes subduction below . . .

- | | |
|----------------------------|--------------------------------|
| a. oceanic . . . hot spots | b. continental . . . hot spots |
| c. oceanic . . . trenches | d. continental . . . trenches |
-

5. . . . seismic waves are transmitted through solids, liquids and gases.

- | | |
|------------|------------------|
| a. Surface | b. Transversal |
| c. Shear | d. Compressional |
-



6. The energy produced by an earthquake of magnitude "7" is . . . times larger than the energy produced by an earthquake of magnitude "5".
- a. 10
c. 100
- b. 30
d. 900
-
7. In 1948 the U.S. Coast and Geodetic Survey established a . . . Early Warning system.
- a. Liquefaction
c. Landslide
- b. Tsunami
d. Earthquakes
-
8. . . . is a period in the Paleozoic era.
- a. Devonian
c. Jurassic
- b. Tertiary
d. Cretaceous
-
9. Debris rolled or pushed by stream flow is part of . . . load
- a. suspended
c. dense
- b. dissolved
d. bed
-
10. The rate of surface runoff is . . . with the decrease of . . .
- a. increased . . . topography
c. increased . . . infiltration
- b. decreased . . . evaporation
d. decreased . . . infiltration
-
11. Asphalt and concrete cover is . . . and greatly . . . infiltration
- a. impermeable . . . reduces
c. impermeable . . . increases
- b. permeable . . . reduces
d. Permeable . . . increases
-
12. . . . form when the stream's gradient . . . and when the stream flows into still water.
- a. Alluvial fans . . . decreases
c. Alluvial fans . . . increases
- b. Deltas . . . decreases
d. Deltas . . . increases
-
13. . . . glaciers form only in areas of high latitude.
- a. Alpine
c. Continental
- b. Mountain
d. Valley
-

14. . . . desert is a typical example of subtropical-latitude (15-30°) deserts.

- a. African Sahara
 - b. Gobi
 - c. Nevada
 - d. Mongolian
-

15. The water table is the top of the . . . zone.

- a. soil-moisture
 - b. saturation
 - c. vadoze
 - d. aeration
-

16. . . . forms upon pumping water from . . . aquifers.

- a. upconing . . . confined
 - b. cone of depression . . . confined
 - c. upconing . . . unconfined
 - d. cone of depression . . . unconfined
-

17. Hard water contains substantial amounts of:

- a. calcium and sodium
 - b. iron and sodium
 - c. calcium and magnesium
 - d. iron and magnesium
-

18. Evaporite deposits are one type of . . . deposits.

- a. sedimentary
 - b. metamorphic
 - c. magmatic
 - d. hydrothermal
-

19. Over the last decade the annual demand for . . . increased.

- a. asbestos and zinc
 - b. copper and zinc
 - c. asbestos and lead
 - d. copper and lead
-

20. . . . is the most effective way to extend (increase) mineral reserves.

- a. Underground mining
 - b. Surface mining
 - c. Recycling
 - d. Strip mining
-

21. Oil and gas are believed to form from . . . microorganisms buried by . . .

- a. land . . . rocks
 - b. marine . . . rocks
 - c. land . . . sediment
 - d. marine . . . sediment
-

22. With increasing burial peat (coal) is transformed into (increasing rank):

- a. bituminous, lignite, anthracite
 - b. lignite, bituminous and anthracite
 - c. bituminous, anthracite and lignite
 - d. lignite, anthracite and bituminous
-

23. . . . , is the naturally occurring radioactive element, which can be underwent in chain reaction.

- a. Uranium – 238
 - b. Thorium – 232
 - c. uranium – 235
 - d. Plutonium – 239
-

24. The geothermal energy is harnessed in the United States, new Zealand, . . .

- a. Italy and Iceland
 - b. Libya and Iceland
 - c. Italy and Germany
 - d. Libya and Germany
-

25. . . . is the partial decomposition of organic matter.

- a. Incineration
 - b. Compaction
 - c. Recycling
 - d. Composting
-

Part II. Circle T = true or F = false and explain why if it is false (18 pts.)

T F 1. Each magnetic mineral has a curie temperature, below which it remains magnetic, but above it the mineral loses its magnetic properties.

T F 2. San Andreas and Dead Sea Fault systems are typical examples of transform plate boundary.

T F 3. Earthquake intensity is a measure of the earthquake effects on human and on surface features and the most widely used is the Richter intensity scale.

T F 4. Precursor phenomena (earthquakes) are things that happen or rock properties that change prior to an earthquake.

T F 5. Meandering stream is a complex pattern of many channels that divide and rejoin shifting across a broad expanse of sediment.

T F 6. Some large water reservoirs (dams) have been found to cause very destructive earthquakes.

T F 7. Abrasion (wind) is the wholesale removal of loose sediment producing desert pavement.

T F 8. Desertification is a term generally restricted to the development of deserts caused by the human impacts.

T F 9. Potentiometric surface is the height to which the hydrostatic pressure in artesian wells would raise the water if the aquifer were unconfined.

T F 10. Salt-water intrusion is a serious problem ^{arising} arriving from groundwater use in deserts and semi-arid areas.

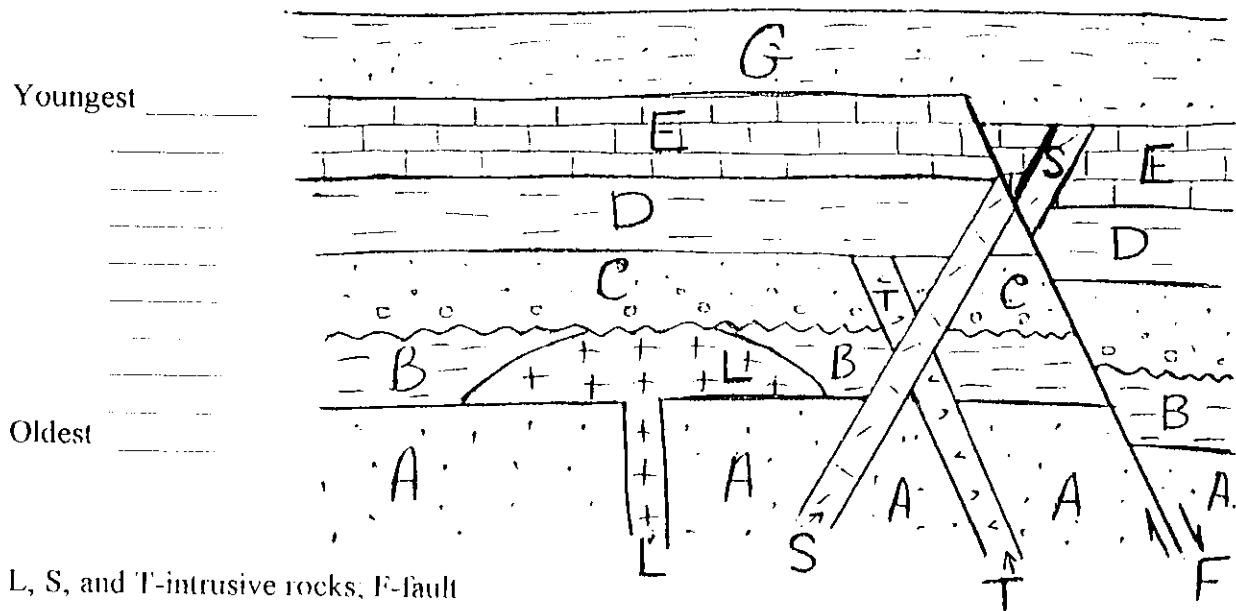
T F 11. Some ore deposits such as chromium are evenly distributed around the world.

T F 12. The amount of time required for oil and gas formation makes them among the nonrenewable energy sources.

Part III. Match the relevant terminologies (one to one) in the following two columns (6 pts.)

- | | | |
|------------------------------------|-----|--------------------|
| 1. Continental collision | ___ | oxbow lakes |
| 2. divergent plate boundary | ___ | icebergs |
| 3. oceanic continental convergence | ___ | creep (faults) |
| 4. hot spots | ___ | seafloor spreading |
| 5. aseismic slip | ___ | fluid injection |
| 6. earthquake control | ___ | Andes |
| 7. stratigraphic correlation | ___ | striations |
| 8. hydrologic cycle | ___ | Alps |
| 9. meanders | ___ | precipitation |
| 10. levees | ___ | faunal succession |
| 11. calving | ___ | Hawaii |
| 12. abrasion (glaciers) | ___ | channel banks |
-

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.).



Part V. Answer only two of the following three questions (20 pts.)

1. Discuss the relationship (curves) between stress and strain and emphasize on the types of deformation, draw a scheme.
2. Indicate and discuss factors governing flood severity.
3. Define the new methods in mineral exploration (Geophysics, Geochemistry and Remote Sensing).

GOOD LUCK