

NAME \_\_\_\_\_

Principles of Geology – GEO 102  
Exam 3 – Fall 2007

**PART I (70%) – Individual Portion (BLUE SCANTRON)** Multiple choice (20-pts.) – You will have exactly 20 minutes to complete this portion. Read each question carefully. There is only one correct answer per question. Choose the best answer and write your answer on the line next to the question **AND** fill in the correct letter on the scantron. This is the closed book and non group portion.

**PART II (30%) – Group Portion (RED SCANTRON)** Multiple choice (20-pts.) and Essay (10 pts.)– Once the BLUE SCANTRONS have been collected, you may get into groups and use your notes to retake the exam. NOTE: Please be courteous to your fellow students and try to be as quiet as possible. As mentioned above, there is only one correct answer per question. Although this is a group portion, you may disagree with your group. Choose the best answer by filling in the correct letter on the scantron. When you leave, turn in your **SCANTRON AND THE ANSWER TO YOUR ESSAY.**

1. A bedrock surface in the winter would have
  - A. Less runoff than a soil in the summer
  - B. Less runoff than a soil in the winter
  - C. More runoff than a soil in the summer
  - D. The same amount of runoff as a soil regardless of the time of year
  
2. While energy is stored when water evaporates, energy is released when
  - A. Water vapor (gas) condenses to water (liquid)
  - B. Ice melts (solid to liquid)
  - C. Liquid water goes to ice (solid)
  - D. A and B
  - E. A and C
  
3. The majority of water on Earth
  - A. Is stored in the ocean
  - B. Evaporates from the ocean
  - C. Precipitates onto the ocean
  - D. Is salty (saline)
  - E. All of the above
  
4. Within the ocean, evaporations
  - A. Increases the salinity of the ocean water
  - B. Decreases the salinity of ocean water
  - C. Removes both water and ions
  - D. Results in a uniform salinity of the ocean waters
  
5. The density of ocean water is controlled by \_\_\_\_\_ & \_\_\_\_\_
  - A. Temperature, salinity
  - B. Viscosity, salinity
  - C. Viscosity, temperature
  - D. Evaporation, precipitation

6. The surface water of the ocean is
- A. Warmer than the deep water
  - B. Has a higher salinity than the deeper water
  - C. Has a more uniform temperature
  - D. Is richer in nutrients than the deep water
  - E. All of the above.
7. Deep ocean circulation is controlled by
- A. Surface wind patterns
  - B. The rotation of the Earth
  - C. The Moon's gravitational force
  - D. Density difference
  - E. None of the above
8. Coastal upwelling
- A. Results when surface waters migrate downward to become deep waters
  - B. Brings nutrients from the deep ocean up to the surface
  - C. Occurs because of density differences
  - D. Is a scientific myth as proven by the "Myth Busters"
9. Karst develops
- A. In sandstones
  - B. In limestones
  - C. As a result of physical weathering
  - D. A and C
  - E. B and C
10. Water in karst regions tends to be \_\_\_\_\_ than in other regions.
- A. More polluted
  - B. Better filtered
  - C. More saline
  - D. Higher temperature
  - E. More dense
11. Review the image on the overhead. Based upon the information, which well would you want to use as your source of water (think both quality and quantity).
- A. A.
  - B. B
  - C. C
  - D. D
  - E. E

12. Which rock would make the best aquifer?
- A. Granite
  - B. Sandstone
  - C. Shale
  - D. Mudstone
  - E. All of the above
13. While the saturated zone has pores completely filled with water, the unsaturated zone has pores
- A. Completely filled with air
  - B. Completely void of water
  - C. Filled with both water and air
  - D. A and B
14. Materials that are poorly sorted
- A. Have high permeability
  - B. High porosity
  - C. Low porosity
  - D. A and B
  - E. A and C
15. A stream increases in length through
- A. Lateral erosion
  - B. downcutting
  - C. sheetflow
  - D. headward erosion
  - E. none of the above
16. The drainage pattern that forms in an area of alternating weak and resistant rocks is the
- A. Dendritic pattern
  - B. Trellis pattern
  - C. Radial pattern
  - D. Rectangular pattern
  - E. Irregular pattern
17. Urbanization results in
- A. More infiltration
  - B. Less runoff
  - C. Less peak discharge
  - D. Fewer floods
  - E. None of the above

18. If you were to travel down a stream, which of the following properties would not increase?

- A. gradient
- B. velocity
- C. discharge
- D. stream width

19. If a dam was built on a stream

- A. Sediment would be deposited upstream of the dam
- B. Erosion would occur directly downstream of the dam
- C. The dam would serve as an intermediate base level
- D. All of the above
- E. None of the above

20. \_\_\_\_\_ refers to the largest particle size a stream can carry and \_\_\_\_\_ refers to the amount of material the stream can carry.

- A. Competence, capacity
- B. Capacity, bed load
- C. Bed load, capacity
- D. Capacity, competence
- E. Bed load competence

Group Essay Questions **(10 points)**:

NAME: \_\_\_\_\_

TA \_\_\_\_\_

Answer the questions to the best of your abilities. Please be concise but provide detail. This is a group discussion, but you can deviate from your group's response. Where appropriate, draw diagrams.

**Explain how the hydrologic cycle and the rock cycle are interrelated. You may use concept maps, Venn Diagrams, illustrations, or text to address the question. Note that this question draws upon material from exams 1 and 2 (rock cycle)...**