

NAME _____

Principles of Geology – GEO 102

Exam 4 – Fall 2005

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 quite 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) While the _____ of a rock can be thought of as the storage within the rock, the _____ is the rock's ability to transmit a fluid.

- A) Porosity; permeability
- B) Porosity, aquifer
- C) Permeability; porosity
- D) Permeability; aquifer
- E) Aquifer, porosity

____2) The primary agent of erosion on the Earth is

- A) Wind
- B) Rain
- C) Running water
- D) Ice
- E) Humans

____3) Given an equal volume of rock, which rock type would hold the most water?

- A) Granite
- B) Well-sorted sand
- C) Poorly-sorted gravel and sand
- D) Limestone – no karst
- E) Sandstone

____4) Which of the following is true for the unsaturated zone:

- A) Pores contain both air and water
- B) Water will infiltrate through the unsaturated zone to reach the water table
- C) The zone can be composed of either consolidated material (lithified/rocks) or unconsolidated material (sands, gravels)
- D) The zone is the area above the water table.
- E) All of the above

- ____5) With which scenario would you have the greatest ground water discharge?
- A) High permeability, low gradient
 - B) Low permeability, high gradient
 - C) Low permeability, low gradient
 - D) High permeability, high gradient**
 - E) Need more information to answer this question.
- ____6) Depending upon a well's location, the pumping of the well can
- A) Draw salt water towards the well, contaminating the fresh water
 - B) Lower the water table so that shallower wells no longer discharge water
 - C) Cause the land to subside as the water leaves behind air in the pore space, which cannot support the weight of the overlying material.
 - D) All of the above**
- ____7) When the input of snow/ice is greater than the output (evaporation, sublimation, melting, calving) for a glacier,
- A) The ice will move upslope (reverse of normal)
 - B) The glacier will retreat
 - C) The glacier will advance**
 - D) A and B
 - E) A and C
- ____8) A stream grows in size (depth, width, and length) through all of the following **EXCEPT:**
- A) Lateral erosion
 - B) Confluence erosion**
 - C) Down cutting
 - D) Headward erosion
 - E) Stream piracy

For the following 3 questions please refer to Figure 1:

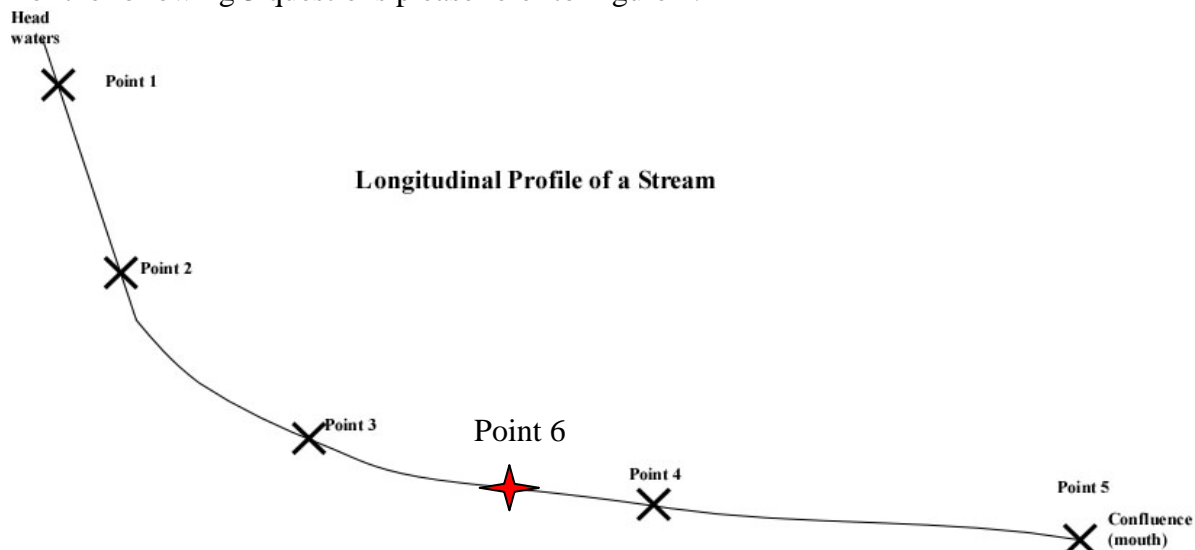


Figure 1: Longitudinal profile of a typical stream, refer to this image for questions 9-11.

____9) Assuming that the discharge and stream area are constant, the stream velocity is highest at _____ and is lowest at _____.

- A) 2, 3
- B) 2, 4**
- C) 4, 2
- D) 4, 3
- E) 3, 4

____10) At which location would the smallest size particles would be deposited?

- A) 1
- B) 2
- C) 3
- D) 4
- E) 5**

____11) How would building a dam at point 6 change the system?

- A) At point 2 there would be an increase in sediment deposition
- B) At point 3 there would be an increase in sediment deposition**
- C) At point 4 there would be an increase in sediment deposition
- D) At point 5 there would be an increase in sediment erosion

____12) A stream's capacity is to the volume of books in a book bag as the stream's competence is to a book's

- A) Size-Weight**
- B) Shape
- C) Type
- D) Location of publication (origin)
- E) Font type

____13) Glaciation occurs when

- A) Summers are longer than winters
- B) Summers are cooler than normal**
- C) The Earth experiences no fall or spring
- D) Winters are cooler than normal
- E) When oceans freeze over

____14) Glaciers form from

- A) Oceans as the freeze
- B) The accumulation and compaction of snow**
- C) Icebergs in the ocean
- D) None of the above

For the following 3 questions please refer to Figure 2:

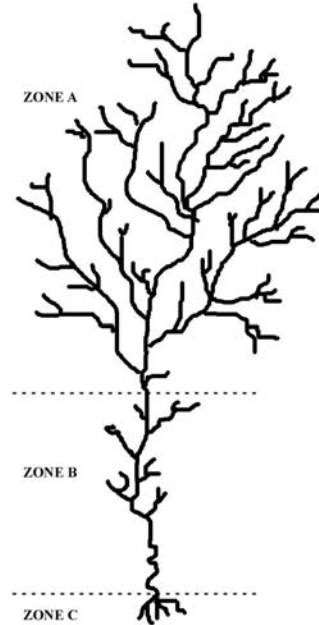


Figure 2: Map view of a stream network. Please reference for questions 15-17.

- ___15) What does the drainage network indicate about the geology of the area?
- A) The area is dominated by fractures or joints that dictate surface water movement.
 - B) The area is dominated by rock with a uniform resistance to erosion.**
 - C) The stream(s) is (are) centered around a high point such as a mountain peak.
 - D) There are alternating areas of rock resistant to erosion and areas where rock can be more easily eroded.
- ___16) In which zone does the most erosion occur?
- A) A**
 - B) B
 - C) C
- ___17) Within zone B, which type of sediment load would be dominant?
- A) Dissolved load
 - B) Bed Load
 - C) Suspended Sediment Load**
 - D) Bed Load and Suspended Sediment load would be equal
 - E) No sediment would be transported in this region.
- ___18) Within the hydrologic cycle, glaciers serve as a
- A) Pathway
 - B) Reservoir**
 - C) Both a pathway and a reservoir
 - D) Neither

____ 19) Within the hydrologic cycle, streams serve as a

- A) Pathway
- B) Reservoir
- C) Both a pathway and a reservoir
- D) Neither

____ 20) The depositional history of a glacier record (for example, the ground moraine, end moraines, lake sediments) provides evidence about a glacier's

- A) retreat
- B) advancement
- C) change from alpine to continental
- D) NONE of the above.

