

Name: _____ Grade ____ / 100 + 1 bonus Percent: _____

GY 112L Lab Assignment 1
Sedimentary Rocks and Rock Suites

Note: Samples are either placed in separate boxes or in collections (rock suites). In either case, most boxes have two labels. The label in red (e.g., 1-A) identifies the rock suite (1) and the sample number (A). There may also be a specific RI (Rock Index) number (e.g., RI 3482) on the box. This should match the permanent number on the rock sample. If it doesn't, it is quite possible that samples have been switched (this is a common problem in GY 112L). Try not to mix the rocks up as it confuses your neighbors and your instructors. And disregard any other labels in the boxes. We are rampant recyclers in geology and reuse old boxes wherever possible.



Question 1: Consists of two siliciclastic sedimentary rock specimens (1-A, 1-B)

A: What are the names of the two specimens? [2 points]

(1-A) _____ (1-B) _____

B: What were the paleoenvironments of deposition of the two specimens? [2 points]

(1-A) _____ (1-B) _____

C: In what way(s) do the grains in the two specimens differ? (consider size, shape and composition).

_____ [5 points]

D: How do you explain your answer to question 1C?

_____ [5 points]

Question 2: Consists of two light colored sedimentary rocks (2-A, B)

A: The two rocks are very similar in color, but they are different in two important ways. What are they?

1) _____ [2 points]

2) _____ [2 points]

B: In what paleoenvironment was 2-A deposited?

_____ [3 points]

C: In what paleoenvironment was 2-B deposited?

_____ [3 points]

Question 3: Siliciclastic sandstone specimen suite (3-A, 3-B, 3-C, 3-D).

A: Match up the rock name with the correct specimen [4 points]

Quartz Arenite _____ Arkose _____

Greywacke _____ Lithic Sandstone _____

B: What were their paleoenvironments of deposition? (choose from beach, river, alluvial fan, continental slope). Some rocks might have been deposited in more than one environment. [4 points]

Quartz Arenite _____ Arkose _____

Greywacke _____ Lithic Sandstone _____

Question 4: The three shales (4-A, 4-B, 4-C).

A: This question should be a piece of cake. Match up the rock name with the correct specimen [6 points]

Red Shale _____ Green Shale _____

Black Shale _____

Question 4 continues on the next page→

B: But this question might not be. What was the depositional environment of each of the shale specimens? **[6 points]**

Red Shale _____

Green Shale _____

Black Shale _____

C: And this question might make you cry. What causes the different color in each of the shale specimens? **[6 points]** (*Be as specific as possible. Detail counts for this question*)

Red Shale _____

Green Shale _____

Black Shale _____

Question 5: Your first rock suite! It consists of three sedimentary rocks that are all associated with evaporite basins

A: What is the name of rock 5-A?

_____ **[2 points]**

B: What is the name of rock 5-B?

_____ **[2 points]**

C: What is the name of rock 5-C?

_____ **[2 points]**

D: What is the hardness of specimen 5-A?

_____ **[2 points]**

E: What test is best to identify specimen 5-B?

_____ **[2 points]**

Question 6: A common sedimentary rock (6) containing biological remains.

A: What class of sedimentary rock is this? _____ [2 points]

B: What is the name of this sedimentary rock? _____ [2 point]

C: In what paleoenvironment was the specimen deposited? (Tricky, but here is a hint: what is the black material in the specimen and where would it be preserved)

_____ [3 points]

Question 7: Two sedimentary materials (7-A, B) that provide diagnostic paleoenvironmental and paleoclimate information.

A: What are the name of these specimens?

7-A _____ 7-B _____ [2 points]

B: In which paleoenvironments were they deposited?

7-A _____ 7-B _____ [2 points]

C: What paleoclimate information can you glean from them?

7-A _____ 7-B _____ [2 points]

Question 8: More sedimentary rocks (8-A, B, C)

A: What is the rock name for specimen 8-A? _____ [2 points]

B: What is the rock name for specimen 8-B? _____ [2 points]

C: In what paleoenvironment was 8-B deposited? _____ [2 points]

D: In what paleoclimate was specimen 8-B deposited? _____ [2 points]

E: What is the rock name for specimen 8-C ? _____ [2 points]

BONUS: In which paleotectonic setting were the 3 rocks deposited? (*Ask for help*)

_____ [2 point]

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Question 9: Three types of limestone. (9-A, B, C)

A: What is the name of these specimens? **[6 points]**

9-A _____ 9-B _____ 9-C _____

B: Apart from color, in what way(s) do the three specimens differ from one another?

_____ **[3 points]**

C: What is the best physical test by which to distinguish siliciclastic sandstones like quartz arenite from limestone?

_____ **[3 points]**

D: Specimen 9-C contains a very common Alabama fossil (it may be marked by an arrow)! It is commonly mistaken for a vertebrate backbone, but it is actually a invertebrate marine animal called a **bryozoan**. The genus[‡] name of this beastie is *Archimedes* and it is an important Mississippian-aged fossil in Alabama. You'll get many more beasties later, but for now, see if you can answer the following question

E. Why do you think this bryozoan is named *Archimedes*? (*Internet research may be required*)

_____ **[5 points]**

[‡] We'll get to taxonomy later in this course