

Petrology
Exam 1 - 2009

name _____



1. On the above diagram, show where the following are found:
 - Canadian Shield
 - Appalachian Mountains
 - Rocky Mountains
 - Cascade Mountains
 - Sierra Nevada Mountains
 - North American Platform
 - North American Craton
 - Basin and Range
 - Colorado Plateau

2. Describe the general age of bedrock near or at the surface in the following places? There may be more than one age for some of these. Be as specific as possible - for some you may not be able to be very specific at all - and use age names from the geologic time scale.

Canadian Shield	
Appalachian Mountains	
Rocky Mountains	
Cascade Mountains	
Sierra Nevada Mountains	
North American Platform	
North American Craton	
Basin and Range	
Colorado Plateau	

3. List the major orogenies that have affected North America since the end of the Precambrian. For each, tell what part of the continent was affected and when the orogeny occurred.

4. What minerals are most common in clastic rocks? Be specific and name them. Why these minerals and not others?

5. What minerals make up common chemical sedimentary rocks and why?

6. For each of the following environments what type of sediment is deposited there and what type of sedimentary rock might form?

a. Mountain Front

b. Desert

c. Nearshore Marine

d. Deep water Marine

e. Lagoon

7. Where would you go if you wanted to find the oldest exposed rocks in the Rocky Mountains?

8. The Black Hills is surrounded by the Spearfish Formation, a red bed. What are red beds and how do they form? Often they are associated with gypsum. Why?

10. Draw a quick cross section E-W of the Black Hills making sure you point out where the oldest and youngest rocks are.

11. Here are some of the more prominent formations that crop out in the Black Hills area. Put them in the correct chronological order in the table below.

Permian-Pennsylvanian Minnelusa Formation

Triassic Spearfish Formation

Cambrian Deadwood Formation

Mississippian Pahasapa Limestone

Tertiary White River Group

upper Cretaceous Pierre Shale

Jurassic Sundance Formation

lower Cretaceous Lakota Formation

youngest
oldest

Which of these formation are:

Precambrian

Paleozoic

Mesozoic

Cenozoic