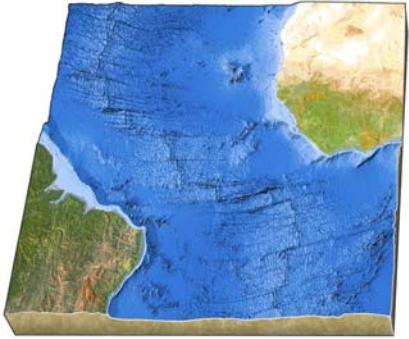

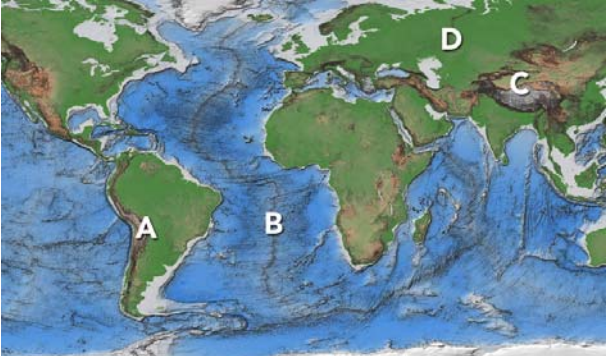






Geology 101 - Exam #1
Fall 2008

1	<p>The first person to take a boat ride down the Colorado River to explore its geology was</p> <ol style="list-style-type: none"> Linus Pauling Frederick Murchison Charles Lyell John Wesley Powell Kit Carson 	
2	<p>Which of these decay schemes would work best for dating the oldest rocks?</p> <ol style="list-style-type: none"> ^{87}Rb-^{87}Sr (half-life 48 by) ^{147}Sm-^{143}Nd (half-life 106 by) ^{238}U-^{206}Pb (half-life 4.5 by) ^{235}U-^{207}Pb (half-life 0.7 by) ^{232}Th-^{208}Pb (half-life 14 by) ^{14}C-^{14}N (half-life 5,730 y) 	
3	<p>On the picture shown, what is the feature that makes a zigzag pattern on the seafloor?</p> <ol style="list-style-type: none"> island arc linear island chain subduction zone mid-ocean ridge none of the above 	
4	<p>Why does the Tibetan Plateau, shown in this figure, have high elevation?</p> <ol style="list-style-type: none"> subduction transform fault continent-continent collision glacial rebound because of formation of an anticline 	
5	<p>Which area of the world is likely to have volcanoes above sea level?</p> <p>A B C D</p>	

6	<p>Which letter is over the oldest oceanic crust?</p> <p>A B C D E</p>	
7	<p>Where on Earth is a continental plate being subducted?</p> <p>a. west coast of N. America b. west coast of S. America c. east coast of Australia d. along the Alpine mountains e. nowhere</p>	
8	<p>In what part(s) of the world do we find the most transform faults?</p> <p>a. mountain belts such as the Himalaya b. adjacent to subduction zones c. along rifts within continents d. at mid-ocean ridges e. in Precambrian shield areas</p>	
9	<p>A rock composed of pieces derived from other rocks is a/an _____ rock.</p> <p>a. igneous b. hydrothermal c. crystalline d. clastic e. any of the above</p>	
10	<p>The two most abundant elements in Earth's crust are:</p> <p>a. Hydrogen and helium b. Iron and magnesium c. Oxygen and silicon d. Sodium and potassium e. Iron and nickel</p>	
11	<p>Which of the following is NOT a major class of rock forming minerals?</p> <p>a. silicates b. carbonates c. oxides d. sulfides e. argonates</p>	
12	<p>A mineral property that can be observed without using a test is:</p> <p>a. effervescence b. magnetism c. magmatism d. hardness e. cleavage</p>	
13	<p>Silicate minerals</p>	

	<ul style="list-style-type: none"> a. are the most abundant minerals in Earth's crust b. include quartz and feldspar c. may not have cleavage (although some do) d. are made of elements e. all of the above
14	<p>Which of these igneous rocks cooled the fastest?</p> <ul style="list-style-type: none"> a. obsidian b. rhyolite c. granite d. gabbro e. diorite
5	<p>Which of these rocks is a felsic rock?</p> <ul style="list-style-type: none"> a. andesite b. basalt c. granite d. diorite e. gabbro
16	<p>What type of magmas originate in the mantle?</p> <ul style="list-style-type: none"> a. felsic magmas b. intermediate magmas c. mafic magmas d. granitic magmas e. any of the above
17	<p>Which of the following can cause a rock to melt and produce a magma?</p> <ul style="list-style-type: none"> a. decrease in pressure b. increase in temperature c. addition of water d. all of the above e. none of the above
18	<p>Which of these produces the most lava?</p> <ul style="list-style-type: none"> a. shield volcanoes b. composite volcanoes c. flood basalts d. caldera e. volcanic domes
19	<p>On June 3, 1991, Maurice and Katya Kraft died at Mt. Unzen. What killed them?</p> <ul style="list-style-type: none"> a. West Nile disease b. basalt lava flow c. volcanic mud flow like the one at Armero d. volcanic bombs e. pyroclastic flow
20	<p>What kind of volcanic rock is most common on Hawaii?</p> <ul style="list-style-type: none"> a. basalt b. granite c. andesite d. rhyolite e. gabbro
21	<p>What famous caldera is associated with several huge eruptions that spread ash over many thousands of square miles. This same caldera is potentially the site of a future "super volcano."</p>

	<ul style="list-style-type: none"> a. Valles b. Mt. St. Helens c. Mt. Mazama d. Mauna Kea e. Yellowstone
22	<p>Which of the following can cause <i>chemical</i> weathering?</p> <ul style="list-style-type: none"> a. oxidation b. dissolution c. biological reactions d. hydrolysis e. all of the above
23	<p>Which of the following can cause <i>physical</i> weathering?</p> <ul style="list-style-type: none"> a. gravity b. pressure release c. ice d. biological activity e. all of the above
24	<p>Which of the following kind of rock contains many large angular clasts?</p> <ul style="list-style-type: none"> a. breccia b. conglomerate c. sandstone d. siltstone e. shale
25	<p>If a rock undergoes a great deal of weathering, so that most of the original material is broken down and gone, what minerals might you expect to find remaining?</p> <ul style="list-style-type: none"> a. olivine b. pyroxene c. mica d. quartz e. breccia
26	<p>Which of the following is a kind of non-clastic sedimentary rock?</p> <ul style="list-style-type: none"> a. sandstone b. conglomerate c. shale d. granite e. coal
27	<p>Which mineral makes up the majority of carbonate rocks?</p> <ul style="list-style-type: none"> a. calcite b. clay c. quartz d. chalk e. feldspar
28	<p>Which of the following is NOT a kind of sedimentary rock?</p> <ul style="list-style-type: none"> a. diorite b. clastic c. shale d. limestone e. evaporite

29	<p>If we find a sequence of sedimentary rocks like the sequence shown, it depicts a:</p> <ol style="list-style-type: none"> transgression regression digression subgression any of the above 	<p>limestone</p> <p>mudstone</p> <p>sandstone</p> <p>older units</p> 
30	<p>A sandstone may represent all of the following environments of deposition EXCEPT:</p> <ol style="list-style-type: none"> beach desert delta river deep ocean 	
31	<p>You find a series of siltstones, shales, sandstones and gravels with some marine shells. The beds are mostly thin and rock types vary from layer to layer. Many types repeat - the rock appears to be a big pile of stuff piled up in random order. Where might such a rock form?</p> <ol style="list-style-type: none"> ocean reef delta dry arid continent tidal flat barrier island 	
32	<p>The picture shows a/an</p> <ol style="list-style-type: none"> anticline syncline normal fault thrust fault reverse fault 	
33	<p>High-temperature, low-pressure metamorphism may occur because of heating caused when magma rises through the crust. This kind of metamorphism is called:</p> <ol style="list-style-type: none"> regional metamorphism retrograde metamorphism contact metamorphism plutonic metamorphism butterfly metamorphism 	
34	<p>When rocks are stressed, they may deform, fold, or break. Which of the following is true:</p> <ol style="list-style-type: none"> Rocks near Earth's surface have a greater tendency to break than rocks at deeper depth. Rocks near Earth's surface fold and deform more easily than rocks at greater depth. Both the above are correct None of the above are correct 	
35	<p>The picture shows Half Dome, in Yosemite Valley. What caused the dome to break into the parallel sheets/layers you can see?</p> <ol style="list-style-type: none"> uplift and release of pressure thrust faulting contact metamorphism thermal metamorphism contraction during cooling 	

36	<p>The picture in the previous question shows a large mass of igneous rock that is part of the Sierra Nevada Batholith in California. What kind of rock is it?</p> <ol style="list-style-type: none"> mafic volcanic rock mafic plutonic rock felsic volcanic rock felsic igneous rock sandstone
37	<p>Forces that affect rock layers may be compressional (squeeze together), extensional (pull apart), or shear. Which of these may create folds?</p> <ol style="list-style-type: none"> extension forces shear forces compression forces compression or shear forces all of the above
38	<p>Some classic metamorphic rock types are slate, phyllite, and schist. Typically, these kinds of rocks form from:</p> <ol style="list-style-type: none"> limestone shale felsic igneous rocks mafic igneous rocks quartzite
39	<p>The rocks present at the deepest levels of the Grand Canyon, adjacent to the Colorado River, are</p> <ol style="list-style-type: none"> plutonic and metamorphic rocks volcanic rocks sandstone shales limestone
40	<p>Which of the following features help geologists determine the <i>environment of deposition</i> of a sedimentary rock?</p> <ol style="list-style-type: none"> composition of the grains fossils that are present grain size and sorting cross bedding, ripple marks, or mud cracks all of the above
41	<p>Which of the following is a kind of clastic sedimentary rock?</p> <ol style="list-style-type: none"> limestone sandstone rock salt coal gypsum
42	<p>Which of the following might form a "clastic" volcanic rock? (The actual term that geologists use is "volcanoclastic," and it refers to volcanic rocks that form in a fashion very similar to sedimentary clastic rocks.)</p> <ol style="list-style-type: none"> granite gabbro basalt sandstone rhyolite
43	<p>Which kind of volcano has relatively steep sides, is composed of layers of flows, ash and other stuff, and may erupt very violently?</p> <ol style="list-style-type: none"> composite volcano

	<ul style="list-style-type: none"> b. shield volcano c. lava fountain d. cinder cone e. flood basalt
44	<p>Volcanic dome</p> <ul style="list-style-type: none"> a. forms from viscous lava b. are relatively small compared with most other kinds of volcanoes c. grow from the inside out d. often contain obsidian e. all of the above
45	<p>Mafic silicate minerals tend to be dark colored compare with felsic silicate minerals. Which of the following is NOT a mafic silicate mineral?</p> <ul style="list-style-type: none"> a. olivine b. pyroxene c. amphibole d. biotite (mica) e. potassium feldspar
46	<p>Which of the following types of plate tectonic boundaries may be associated with volcanic activity?</p> <ul style="list-style-type: none"> a. mid ocean ridge b. ocean-ocean subduction zone c. ocean-continent subduction zone d. all of the above e. none of the above
47	<p>Which of the following is an example of a divergent plate boundary?</p> <ul style="list-style-type: none"> a. mid ocean ridge b. ocean-ocean subduction zone c. ocean-continent subduction zone d. all of the above e. none of the above
48	<p>Which of the following is NOT a kind of igneous intrusion?</p> <ul style="list-style-type: none"> a. batholith b. sill c. laccolith d. caldera e. dike
49	<p>Which of the following is a foliated kind of metamorphic rock?</p> <ul style="list-style-type: none"> a. gneiss b. conglomerate c. andesite d. limestone e. marble
50	<p>If deformation and metamorphism normally take place in belts along continent margins, why do we find metamorphic and deformed rocks in continental interiors today?</p> <ul style="list-style-type: none"> a. The forces pushing on the edges of continents extend inward b. Rising magma forms huge plutons c. Earthquakes can also deform rocks d. Many continental interiors were once continental margins e. All of the above

name _____

Geology 101 - Exam #1
Fall 2008

51. Summarize clearly, or sketch, the features associated with a fold and thrust belt.

52. Make a sketch of (a) cross bedding, and (b) graded bedding. Explain how/why each occurs.

53. Describe several different settings/reasons for magmatic activity that occurs away from plate boundaries. Use sketches if it would be simpler than words.

54. Make a drawing of a cross section of South America and explain why it is not the same on both sides.

55. Which of the following are considered minerals by geologists (circle the names of minerals):

- a. ice
- b. water
- c. liquid mercury that occurs naturally
- d. sugar crystals
- e. obsidian
- f. diamond
- g. quartz

56. Clearly define the terms element, mineral, and rock. And explain the difference between all three of them.

57. Sketch or explain what a silicon tetrahedron is, and sketch/explain how they join to create minerals.

58. Sketch or describe why melting occurs along mid-ocean ridge and why the resulting magmas are basaltic (mafic).

59. Explain why some volcanic eruptions are violent and dangerous, while others pose little risk.

60. Quartz and clay are the two most common minerals in sedimentary rocks. Why?