

# Physical Geology

## Test 1

Spring, 2006

Please enter your answer in the space next to the number. The last page of questions are from slides that we will look at together later in the test.

1. \_\_\_\_\_(T/F) The geologic time scale was developed using principles of relative dating.
2. \_\_\_\_\_(T/F) Uniformitarianism is a fundamental principle of geology that states that the physical, chemical, and biological laws that govern geological processes remain unchanging through time.
3. \_\_\_\_\_(T/F) Ions form when atoms gain or lose neutrons.
4. \_\_\_\_\_(T/F) Isotopes of the same element have different mass numbers.
5. \_\_\_\_\_(T/F) According to Bowen's reaction series, quartz is often the last mineral to crystallize from a melt.
6. \_\_\_\_\_(T/F) The only factor that determines the texture of an igneous rock is the amount of silica present in the magma.
7. \_\_\_\_\_(T/F) In general, the less silica in a magma, the greater its viscosity.
8. \_\_\_\_\_(T/F) The greatest volume of volcanic rock is produced along the oceanic ridge system.
9. \_\_\_\_\_Which of the following layers of the Earth is a liquid? (a) crust (b) mantle (c) outer core (d) inner core
10. \_\_\_\_\_The outermost, brittle layer of the Earth is the (a) asthenosphere (b) biosphere (c) hydrosphere (d) lithosphere (e) mesosphere
11. \_\_\_\_\_Which of the following rocks is likely to be the most dense? (a) one found while climbing in the Andes (b) one found on the side of a volcano in Hawaii (c) one found on the shores of Lake Yellowstone
12. \_\_\_\_\_Which of the following rules for relative dating is similar to looking for the oldest mail at the bottom of the pile? (a) cross-cutting relationships (b) family reunions in Arkansas (c) fossil succession (d) law of superposition
13. \_\_\_\_\_In order to tell the age in years of a rock, a geologist uses (a) astrology (b) fossil succession (c) positively charged ions (d) radioactive isotopes

14. \_\_\_\_\_The major development that allowed reptiles to become dominant during the Mesozoic was (a) the development of big teeth (b) the development of an ability ability their eggs on land (c) the dying of major mammal groups (d) a rapid increase in their size
15. \_\_\_\_\_An example of where two continental plates collided is (a) the Andes Mountains (b) the Cascade Mountains (c) the Himalayas (d) Japan
16. \_\_\_\_\_The most common mineral group, the one from which the most rocks are formed, is the (a) oxides (b) pure elements (c) silicates (d) sulfides
17. \_\_\_\_\_Which of the following is the mineral of which plaster (dry wall) is composed? (a) calcite (b) galena (c) gypsum (d) quartz
18. \_\_\_\_\_Which of the following characteristics of minerals is least likely to be helpful classifying them? (a) color (b) hardness (c) luster (d) streak
19. \_\_\_\_\_Which of the following silicates has the least iron and magnesium? (a) augite (b) hornblende (c) mica (d) quartz
20. \_\_\_\_\_Which of the following minerals is most common at the Earth's surface? (a) feldspar (b) galena (c) gypsum (d) halite (e) pyrite
21. \_\_\_\_\_The most common *extrusive* igneous rock is (a) andesite (b) basalt (c) diorite (d) gabbro (e) granite. (f) rhyolite
22. \_\_\_\_\_Which of the following rocks formed from magma with the greatest amount of silica? (a) andesite (b) basalt (c) diorite (d) granite
23. \_\_\_\_\_Which of the following rocks form from lava with the highest melting point? (a) andesite (b) basalt (c) diorite (d) granite
24. \_\_\_\_\_The rock with the same composition as rhyolite but with different texture is (a) andesite (b) basalt (c) diorite (d) granite
25. \_\_\_\_\_Which of the following forms from magma with the most magnesium and iron? (a) andesite (b) basalt (c) diorite (d) granite
26. \_\_\_\_\_Which of the following is most like to be found on a volcano above where oceanic lithosphere is subducted under continental lithosphere? (a) andesite (b) basalt (c) diorite (d) granite
27. \_\_\_\_\_At which of the following locations is the production of lava the greatest in terms of covering the Earth's surface? (a) continent-continent collisions (b) continental hotspots (c) midoceanic spreading centers (d) subduction zones
28. \_\_\_\_\_In the video of Mt. St. Helens, which of the following did we *not* see? (a) aerial shots of Crater Lake (b) before and after shots of Spirit Lake (c) the bulging of the side of Mt. St. Helens before the eruption (d) the death of a geologist on site (e) eruptions of clouds of ash
29. \_\_\_\_\_Which of the following lava types is likely to erupt most explosively? (a) felsic (b) intermediate (c) mafic

30. \_\_\_\_\_ Which of the following types of volcanoes is found around the Ring of Fire? (a) cinder cone (b) composite cone (c) shield volcano
31. \_\_\_\_\_ The collapse depression at the top of a volcano is called a (a) caldera (b) lahar (c) nuee ardente (d) pyroclastic
32. \_\_\_\_\_ The basalts of the Snake River Plateau in Eastern Washington cover large areas and are due to (a) cinder cones (b) fissure eruptions (c) lahars (d) a meteorite impact
33. \_\_\_\_\_ The lead and zinc deposits found filling fractures in the Dubuque area are associated with (a) bauxite (b) hydrothermal solutions (c) quartz deposits (d) iron ore
34. \_\_\_\_\_ The rock bodies that form at depth from the intrusion of magma, named for a god of the underworld, are called (a) hadeans (b) neptunics (c) plutons (d) tridents
35. \_\_\_\_\_ Which of the following is *not* typical of shield volcanoes? (a) built primarily of basaltic lava flows (b) contain a small percentage of pyroclastic material (c) large (d) occur most commonly at subduction zones
36. \_\_\_\_\_ In the story of the Bre-X mine, finding gold became an *international* story because (a) the company owners became very rich (b) a geologist's face was eaten by pigs (c) the gold discovered was a special white gold (d) many people invested in company stock
37. \_\_\_\_\_ I told the story of my dad's heart attack to illustrate (a) how boiling a pot results in convection currents like in the Earth (b) the effects of density and melting point in differentiating minerals (c) how genetics influences survival (d) the need to eat right
38. \_\_\_\_\_ In the story of Lake Nyos, Cameroon, the eruption that took place and killed many people was due to (a) dissolved carbon dioxide at the bottom of the lake (b) high-viscosity magma (c) a new magmatic intrusion (d) a subduction zone

The following questions refer to the slides that we will watch together.

39. \_\_\_\_\_ In the slide shown, which of the following is occurring? (a) plate X and Y converge, thicken, and create mountains (b) plate X is being subducted under plate Y (c) plate Y is being subducted under plate X (d) plate Y is moving over a hotspot toward plate X
40. \_\_\_\_\_ In the picture, shown the atomic mass is equal to (a) number of x particles (b) number of y particle (c) number of z particles (d) number of x plus number of z particles (e) number of y plus number of z particles
41. \_\_\_\_\_ The bonds joining the atoms in the mineral shown are (a) covalent (b) ionic (c) metallic (d) weak intermolecular
42. \_\_\_\_\_ In the slide shown, the charge of the atom on the right is (a) negative (b) neutral (c) positive
43. \_\_\_\_\_ The bond that results from the process shown in the slide is (a) one of the strongest bonds (b) one of the weakest bonds (c) common in metals
44. \_\_\_\_\_ The mineral shown contains which of the following as a major constituent? (a) aluminum (b) cobalt (c) iron (d) lead
45. \_\_\_\_\_ Which of the following best describes the rock shown? (a) felsic extrusive (b) felsic intrusive (c) mafic extrusive (d) mafic intrusive
46. \_\_\_\_\_ The rock shown differs from the one in the preceding slide by (a) the amount of magnesium and iron it contains (b) its melting point (c) the rate at which the magma which formed it cooled (d) the viscosity of the magma from which it formed
47. \_\_\_\_\_ Which of the following is *not* a property of the rock shown? (a) commonly formed at midoceanic spreading centers (b) has a relatively low melting point (c) high in magnesium and iron (d) very common at the Earth's surface
48. \_\_\_\_\_ The volcano shown, similar to Mt. St. Helens, commonly forms at (a) continental hotspots (b) midoceanic spreading centers (c) oceanic hotspots (d) subduction zones
49. \_\_\_\_\_ Which of the two volcanoes shown is made from the most pyroclastic material? (a) X (b) Y (c) they are the same
50. \_\_\_\_\_ The rock resulting from the lava flow shown will be (a) andesite (b) basalt (c) diorite (d) granite