

# Physical Geology

## Test 1

Fall, 2006

Please enter your answer in the space next to the number. The last 10 questions are from slides that we will look at together later in the test.

1. \_\_\_\_\_(T/F) Over 82 percent of Earth's volume is contained in the crust.
2. \_\_\_\_\_(T/F) The global ocean covers about 71 percent of Earth's surface and accounts for nearly 97 percent of the planet's water.
3. \_\_\_\_\_(T/F) The composition of Earth's core is thought to be an iron-nickel alloy with minor amounts of oxygen, silicon, and sulfur.
4. \_\_\_\_\_(T/F) Ions form when atoms gain or lose neutrons.
5. \_\_\_\_\_(T/F) The number of protons in an atom's nucleus determines its atomic number.
6. \_\_\_\_\_(T/F) Igneous rocks are the rock type most likely to contain fossils.
7. \_\_\_\_\_(T/F) "Wet" rock buried at depth has a much greater melting temperature than does "dry" rock of the same composition and under the same confining pressure.
8. \_\_\_\_\_(T/F) Pumice is a volcanic igneous rock that, like obsidian, has a porphyritic texture.
9. \_\_\_\_\_In the essay on the Bre-X mine, who is considered the most likely perpetrator of the hoax? (a) the geologist working at the site (b) the lab technicians analyzing for gold (c) the owners of the company (d) the stock analysts
10. \_\_\_\_\_In the essay on my father's heart attack, which of the following rocks most closely corresponds to the fat? (a) andesite (b) diorite (c) granite (d) gabbro
11. \_\_\_\_\_In the essay on Lake Nyos, the deadly gas released by the eruption was (a) carbon dioxide (b) nitrous oxide (c) oxygen (d) methane (e) water vapor
12. \_\_\_\_\_Which of the following parts of the Earth is liquid? (a) crust (b) mantle (c) outer core (d) inner core
13. \_\_\_\_\_The modern geological view that states that physical laws operate today as they did in the past is called (a) catastrophism (b) general relativity (c) plate tectonics (d) uniformitarianism
14. \_\_\_\_\_Which of the following has physical properties most similar to the lithosphere? (a) gasoline (b) hot air (c) peanut brittle (d) toothpaste

15. \_\_\_\_\_Which of the following mountains that we discussed in class were formed from a continent-continent collision? (a) Andes (b) Himalayas (c) Mauna Loa (Hawaii) (d) Mt. St. Helens (e) Mt. Fuji (Japan)
16. \_\_\_\_\_To determine whether two layers of rock are older or younger than each other is to determine (a) absolute dating (b) geochemistry (c) radioisotopic decay (d) relative dating
17. \_\_\_\_\_At the beginning of which of the following time periods were the first hard parts of organisms preserved in the rocks? (a) Cenozoic (b) Mesozoic (c) Paleozoic (d) Precambrian
18. \_\_\_\_\_Extremely deep (occasionally more than 11,000 meters deep), relatively narrow depressions on the ocean floor are called (a) abyssal plains (b) midoceanic spreading centers (c) trenches (d) hot spots
19. \_\_\_\_\_From which of the following minerals is plaster and other similar building materials composed? (a) feldspar (b) galena (c) gypsum (d) mica (e) quartz
20. \_\_\_\_\_Isotopes of the same element have different (a) number of protons (b) number of neutrons (c) atomic numbers (d) mass numbers (e) all of the above (f) a and c (g) b and d
21. \_\_\_\_\_Which of the following silicate structures is found in minerals with the most magnesium and iron? (a) independent tetrahedra (b) single chains (c) double chains (d) sheets (e) three-dimensional framework
22. \_\_\_\_\_The mineral that is the purest silica is (a) feldspar (b) galena (c) gypsum (d) mica (e) quartz
23. \_\_\_\_\_The most common mineral at the surface of the earth is (a) feldspar (b) galena (c) gypsum (d) mica (e) quartz
24. \_\_\_\_\_Which of the following is likely to most affect the size of crystals? (a) amount of trapped gas (b) amount of water (c) composition (d) rate of cooling
25. \_\_\_\_\_The most common rock at the surface of the earth is (a) andesite (b) basalt (c) diorite (d) gabbro (e) granite (f) rhyolite
26. \_\_\_\_\_Which of the following rocks is intermediate in composition and intrusive? (a) andesite (b) basalt (c) diorite (d) gabbro (e) granite (f) rhyolite
27. \_\_\_\_\_Which of the following rocks is very dark colored and fine-grained? (a) andesite (b) basalt (c) diorite (d) gabbro (e) granite (f) rhyolite
28. \_\_\_\_\_The intrusive equivalent of the igneous rock basalt is (a) andesite (b) diorite (c) gabbro (d) granite (e) rhyolite
29. \_\_\_\_\_The rock with the same composition as granite is (a) andesite (b) basalt (c) diorite (d) gabbro (e) rhyolite
30. \_\_\_\_\_Which of the following is extrusive and comes from the most viscous lava? (a) andesite (b) basalt (c) diorite (d) gabbro (e) granite (f) rhyolite

31. \_\_\_\_\_Which of the following is intrusive and comes from the densest magma? (a) andesite (b) basalt (c) diorite (d) gabbro (e) granite (f) rhyolite
32. \_\_\_\_\_Which of the following is extrusive and comes from the lava with the highest melting point? (a) andesite (b) basalt (c) diorite (d) gabbro (e) granite (f) rhyolite
33. \_\_\_\_\_Which of the following is produced during volcanic eruptions that are the most explosive? (a) andesite (b) basalt (c) diorite (d) gabbro (e) granite (f) rhyolite
34. \_\_\_\_\_Mineral deposits, such as those in the Dubuque area, are associated with (a) hydrothermal solutions (b) increased cancer incidence (c) radioactivity (d) rain forests (e) volcanic eruptions
35. \_\_\_\_\_The greatest volume of volcanic rock is produced (a) at hot spots (b) at mid-oceanic spreading centers (c) at subduction zones (d) by Japan
36. \_\_\_\_\_Large volcanoes, built primarily of basaltic lava flows with little or no pyroclastic materials, are (a) composite cones (b) shield volcanoes (c) stratovolcanoes (d) cinder cones
37. \_\_\_\_\_Prior to the 1980 eruption of Mt St. Helens, one of the clearest precursor events was (a) bulging of the mountain (b) evacuation of people living on the mountain (c) flocking of geologists to study it (d) steam from the vent
38. \_\_\_\_\_Ash and volcanic bombs are examples of (a) lahars (b) lava (c) magma (d) pyroclastic materials
39. \_\_\_\_\_Which of the following types of volcanoes is shaped like a cone and forms tall, beautiful mountains, such as Mt. St. Helens? (a) calderas (b) cinder cones (c) composite cone (d) shield volcanoes
40. \_\_\_\_\_Which of the following volcanoes destroyed Pompeii in 79 A.D.? (a) Etna (b) Mauna Loa (c) Mt St Helens (d) Popocatepetl (e) Vesuvius

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

41. \_\_\_\_\_ Which of the following is *not* a description of features in the site circled in red?  
(a) Andes Mountains (b) oceanic-oceanic plate collision (c) subduction zone (d) volcanic eruptions of andesitic lava
42. \_\_\_\_\_ Which type of bonds form the mineral shown? (a) covalent (b) ionic (c) metallic (d) weak intermolecular
43. \_\_\_\_\_ The mineral shown is the ore for which of the following? (a) iron (b) lead (c) silver (d) zinc
44. \_\_\_\_\_ In the picture shown, no volcanoes occur between the dashed line and the Japan trench because (a) Japan has moved off of the oceanic hotspot (b) the magma is too viscous (c) the subducting plate is not deep enough (d) the water is too deep
45. \_\_\_\_\_ The two rocks shown differ in (a) their composition (b) the depth at which they formed (c) their melting points (d) the viscosity of their magmas
46. \_\_\_\_\_ The ages and locations of the volcanoes shown are due to (a) a continent-continent collision (b) a meteor impact (c) plate movement over a mantle hotspot (d) presence of a subduction zone
47. \_\_\_\_\_ The lava shown is all of the following *except* (a) extrusive (b) highly viscous (c) mafic (d) basaltic
48. \_\_\_\_\_ In the figure shown, Somalia and Yeman are (a) both Arabic (b) colliding, forming a new mountain chain (c) pulling apart, forming new ocean bottom (d) sliding by each other, forming earthquakes
49. \_\_\_\_\_ The type of bond shown is (a) covalent (b) ionic (c) metallic (d) weak intermolecular
50. \_\_\_\_\_ The majority of the red dots shown occur (a) around the Ring of Fire (b) at subduction zones (c) midoceanic spreading centers (d) all of the above (e) a and b only