

Physical Geology

Test 1

Summer 2003

Please enter your answer on a blue scantron. The first 10 questions are directly from the book's web site. The last 7 are from slides we will look at together later in the test.

1. What is the name of the theory that states "the physical, chemical, and biological laws that operate today have also operated in the geologic past." (a) historical geology (b) uniformitarianism (c) superposition (d) catastrophism (e) hypothesis
2. Which of the following is a well-tested and widely accepted view that best explains certain observable facts? (a) scientific method (b) theory (c) fact (d) rule (e) hypothesis
3. Which type of bond occurs in a crystal of NaCl (salt or halite)? (a) metallic (b) covalent (c) radioactive (d) ionic (e) x-ray
4. This property is the least reliable when identifying a mineral: (a) streak (b) hardness (c) luster (d) color (e) specific gravity
5. The two most common elements in the continental crust are: (a) oxygen and aluminum (b) iron and aluminum (c) iron and magnesium (d) oxygen and silicon (e) hydrogen and helium
6. The micas have what type of structure? (a) single chains of silicate tetrahedra (b) double chains of silicate tetrahedra (c) sheets of silicate tetrahedra (d) isolated silicate tetrahedra
7. Which of these rock types contains the most quartz? (a) andesite (b) granite (c) gabbro (d) basalt (e) komatite
8. The viscosity of magma is dependent on: (a) silica content. (b) partial melting. (c) the type of eruption. (d) iron content. (e) aluminum content.
9. What is the most common gas expelled from a volcano? (a) carbon monoxide (b) sulfur dioxide (c) carbon dioxide (d) water vapor (e) silicon dioxide
10. Which type of volcano would most likely consist of basalt? (a) geyser (b) composite (c) stratovolcano (d) cinder cone (e) shield volcano

11. Which of the following statements best describes what Galileo said that got him into trouble? (a) The Earth is millions of years old. (b) The Earth is not flat. (c) The Earth orbits the Sun. (d) The moon is not made of green cheese.
12. Modern geology starts with which of the following assumptions? (a) Catastrophes created large features, such as the Grand Canyon, within a short time. (b) The Earth is very old. (c) Physical processes operated in the past as they do today. (d) The world was created in six days.
13. What do geologists believe is the age of the earth? (a) 4.5 thousands years (b) 4.5 million years (c) 4.5 billion years (d) 4.5 trillion years
14. Which of the following is not a compositional layer of the earth? (a) crust (b) lithosphere (c) mantle (d) core
15. Which of the following is the brittle outer layer of the earth which is comprised of large plates. (a) crust (b) lithosphere (c) mantle (d) core
16. Which of the following is an example of a convergent plate boundary? (a) midoceanic spreading center (b) rift zone (c) subduction zone (d) the San Andreas Fault
17. Which of the following rock types might be formed near the surface of the Earth due to the pressure of two continental plates colliding? (a) igneous (b) metamorphic (c) sedimentary
18. In which of the following forms of carbon are the bonds all covalent? (a) coal (b) diamond (c) graphite
19. In which of the following substances are the electrons most free to move around? (a) coal (b) copper (c) diamond (d) plastic
20. Which of the following determine the way in which an element bonds with another? (a) electrons (b) isotopes (c) neutrons (d) protons
21. Which of the following is **not** used to determine the age of geologic material? (a) fossils (b) molecular bonding (c) radioactive decay (d) relative position (above, below, etc.)
22. Silicate minerals with which of the following structures have the highest percentage of iron and magnesium? (a) independent tetrahedra (b) single chains (c) double chains (d) sheets (e) 3-dimensional framework
23. Silicate minerals with which of the following structures crystallize first as a magma cools? (a) independent tetrahedra (b) single chains (c) double chains (d) sheets (e) 3-dimensional framework
24. Which of the following silicate minerals is most likely to be found on a sandy beach? (a) amphibole (b) feldspar (c) mica (d) pyroxene (e) quartz
25. Which of the following would **not** affect whether a mineral deposit was classified as a reserve? (a) availability of alternatives to the mineral (b) cost of extracting the mineral (c) chemical composition of the mineral (d) market price of the mineral

26. Which of the following substances is **not** a native element? (a) diamond (b) gold (c) graphite (d) rust (e) silver
27. Which of the following is fine-grained and black? (a) andesite (b) basalt (c) gabbro (d) granite (e) rhyolite
28. Which of the following is coarse-grained and felsic? (a) andesite (b) basalt (c) gabbro (d) granite (e) rhyolite
29. Which of the following forms at the Earth's surface from felsic magma? (a) andesite (b) basalt (c) gabbro (d) granite (e) rhyolite
30. Which of the following is most likely to form composite volcanoes at subduction zones? (a) andesite (b) basalt (c) gabbro (d) granite (e) rhyolite
31. Which of the following is the most common rock on the Earth's surface? (a) andesite (b) basalt (c) gabbro (d) granite (e) rhyolite
32. Which of the following is intrusive and forms ocean lithosphere? (a) andesite (b) basalt (c) gabbro (d) granite (e) rhyolite
33. Which of the following is an intrusive rock found in continents but not oceanic crust? (a) andesite (b) basalt (c) gabbro (d) granite (e) rhyolite
34. Which of the following is an intrusive rock that has the most quartz in it? (a) andesite (b) basalt (c) gabbro (d) granite (e) rhyolite
35. Which of the following is likely to be the main rock in pahoehoe? (a) andesite (b) basalt (c) gabbro (d) granite (e) rhyolite
36. Which of the following is likely to be deposited from hydrothermal solutions? (a) aluminum (b) gold (c) gypsum (d) table salt
37. Which of the following magma types has the lowest viscosity (runniest)? (a) mafic (b) intermediate (c) felsic
38. Which of the following does **not** strongly affect the viscosity of magma? (a) density (b) dissolved gases (c) silica content (d) temperature
39. Which of the following volcanoes is likely to have the *least* steep slopes? (a) caldera (b) cinder cone (c) composite cone (d) shield volcano
40. Which of the following is likely to result when the snow on top of a volcano melts suddenly during an eruption? (a) caldera (b) lahar (c) nuee ardente (d) pyroclastic flow
41. Which of the following produce the greatest volumes of lava? (a) fissure eruptions (b) hot spots (c) subduction zones (d) transform faults
42. Which of the following is a pluton that cuts across existing rock layers? (a) dike (b) sill (c) laccolith (d) lahar
43. Which of the following accounts for the interior of the Earth remaining warm so long after it formed? (a) friction (b) original heat of formation (c) radioactivity (d) sunlight

From the slides:

44. Which of the following does **not** accurately describe the specimen shown? (a) It is felsic (b) It is a major component of gabbro. (c) It has 3-dimensional framework bonding. (d) It is quartz. (e) The magma from which it formed cooled slowly.
45. The volcanic islands in the figure shown formed at (a) a continental hot spot (b) a midoceanic spreading center (c) an oceanic hot spot (d) a subduction zone
46. The feature I will point to represents (a) a continental hot spot (b) a continental plate collision (c) the location of new oceanic crust (d) a subduction zone
47. The figure shown is all of the following **except** (a) common at midoceanic spreading centers (b) common in the cores of mountains (c) felsic (d) intrusive (e) granite
48. The feature I will point to is (a) a continental hot spot (b) a midoceanic spreading center (c) a oceanic hot spot (d) a subduction zone
49. The texture of the rock shown is due to all of the following **except** (a) rapid cooling (b) expansion of trapped gases (c) weathering
50. The figure shows all of the following **except** (a) formation of intraplate hot spots (b) relative thickness of oceanic and continental lithosphere (c) a subduction zone (d) water lowering the melting point of rock