

Physical Geology

Test 1

Fall, 2005

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) The geologic time scale was developed using principles of relative dating.
2. _____(T/F) Over 82 percent of Earth's volume is contained in the crust.
3. _____(T/F) Isotopes of the same element have different mass numbers.
4. _____(T/F) The number of protons in an atom's nucleus determines its atomic number.
5. _____(T/F) Igneous rocks are the rock type most likely to contain fossils.
6. _____(T/F) Water vapor, carbon dioxide, and sulfur dioxide are the most common gases found in magma.
7. _____(T/F) A magma's viscosity is affected by its composition, temperature, and amount of dissolved gases.
8. _____(T/F) The greatest volume of volcanic rock is produced along the oceanic ridge system.
9. _____In the story of the Bre-X mining company, the group that lost the most money on the hoax were (a) Canadian investors (b) the geologists employed by Bre-X (c) Indonesian property owners (d) the owners of the company
10. _____In the essay on my father's heart attack, I use the analogy of boiling fatty meat to separate the fat and meat in order to explain which of the following: (a) separation by differences in melting point (b) separation by differences in density (c) separation by differences in viscosity (d) a and b only (e) all of the above
11. _____The story of Deadly Lake Nyos was used to illustrate (a) the role of gases in volcanic eruptions (b) the hazards of living near a volcano (c) the effect of trapped gases upon viscosity of magma (d) a and b only (e) all of the above
12. _____The branch of geology concerned about the change of the Earth through time is called (a) geochemistry (b) geophysics (c) historical geology (d) physical geology
13. _____The concept that the Grand Canyon was formed by erosion processes such as we observe today is an example of (a) catastrophism (b) fossil succession (c) relative dating (d) uniformitarianism (e) all of the above

14. _____My sister is older than me. This is an example of (a) catastrophism (b) fossil succession (c) relative dating (d) uniformitarianism (e) all of the above
15. _____At the end of which of the following major time periods did the dinosaurs go extinct? (a) cenozoic (b) mesozoic (c) paleozoic (d) precambrian
16. _____Which of the following has been proven repeatedly to be useful and to make accurate predictions? (a) hypothesis (b) measurement (c) observation (d) theory
17. _____Which of the following has physical properties most similar to those of the asthenosphere? (a) gasoline (b) hot air (c) peanut brittle (d) toothpaste
18. _____Which of the following mountains that we discussed in class are —em not formed from volcanic activity at a subduction zone? (a) Andes (b) Himalayas (c) Mt Fuji (Japan) (d) Mt St Helens (e) all of the above
19. _____Which of the following is *not* a property of a mineral? (a) crystal structure (b) definite chemical composition (c) naturally occurring (d) organic (e) solid
20. _____Which part of an atom determines how it bonds with other atoms? (a) valence electrons (b) mass (c) neutrons (d) protons
21. _____Halite (table salt) is formed from which kind of bond? (a) covalent (b) ionic (c) metallic (d) weak intermolecular
22. _____Which of the following kinds of bond allows you to write with your pencil? (a) covalent (b) ionic (c) metallic (d) weak intermolecular
23. _____Which of the following is *not* a property of feldspar? (a) formed from three-dimensional framework bonding of silica tetrahedra (b) mafic (c) most common mineral at the Earth's surface (d) relatively less dense than most other silicates
24. _____**(T/F)** Pyrite is formed from single chains of silica tetrahedra.
25. _____**(T/F)** Risk of cancer from exposure to asbestos is greater than risk of death due to an automobile accident.
26. _____**T/F** If a silicate rock melts at less than 1000 degrees, a good guess is that its mineralogy is felsic, not mafic.
27. _____**T/F** If a silicate rock contains a lot of iron and magnesium, a good guess is that most of the minerals of which it is composed are formed from three-dimensional framework bonding of silica tetrahedra.
28. _____**(T/F)** On average, continental rocks are more dense than the rocks of the oceanic crust.
29. _____The intrusive equivalent of the igneous rock basalt is (a) diorite (b) gabbro (c) granite (d) pumice
30. _____**(T/F)** As the silica content of magma increases, the viscosity decreases.
31. _____Which of the following rocks is most likely to have formed at depth? (a) basalt (b) diorite (c) obsidian (d) pumice

32. _____Which of the following rocks is likely to be formed from an eruption on the Hawaiian Islands? (a) andesite (b) basalt (c) gabbro (d) diorite (e) granite (f) rhyolite
33. _____A shield volcano is most likely to be formed from which of the following rocks? (a) andesite (b) basalt (c) gabbro (d) diorite (e) granite (f) rhyolite
34. _____An eruption leading to which of the following rocks is likely to be most explosive? (a) andesite (b) basalt (c) gabbro (d) diorite (e) granite (f) rhyolite
35. _____Which of the following is likely to lead to the largest volume of lava? (a) central-vent eruption (b) cinder-cone eruption (c) fissure eruption (d) meteorite impacts
36. _____The eruption of Mt St Helens was preceded by all of the following *except* (a) bulging on the flanks of the volcano (b) evacuation of most of the population (c) intense study by geologist (d) lava flows from openings on the side of the volcano (e) small-scale earthquakes
37. _____Volcanic ash and *bombs* are examples of (a) calderas (b) mafic eruptions (c) pahoehoe (d) pyroclastic eruptions
38. _____Composite cones are most likely to be found near (a) continental hot spots (b) midoceanic spreading centers (c) oceanic hot spots (d) subduction zones
39. _____Which of the following is the best explanation of why people choose to live next to volcanoes? (a) cheap land (b) geothermal heat (c) good soils (d) the view is pretty
40. _____*Pluton* is the general term for an igneous intrusion. Which type of pluton cuts across existing rocks and is exposed, for example, at Shiprock, NM? (a) batholith (b) dike (c) laccolith (d) sill

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

41. _____The features in the slide shown include all of the following *except* (a) convergent margin (b) lithospheric plates (c) subduction zone (d) transform faults (e) trench
42. _____The mineral has all of the following attributes *except* (a) above-average density (b) composition that includes lead (c) independent silica tetrahedra (d) metallic luster (e) source areas near Dubuque
43. _____In general, the best explanation of the reason rock Y has larger crystals than rock X is that (a) it cooled more quickly (b) it cooled more slowly (c) the magma it formed from contained more dissolved gases (d) the magma is formed from is more strongly felsic
44. _____The dark blue line marked with an X represents (a) a batholith (b) a deep-sea trench (c) a mid-oceanic spreading center (d) a transform fault
45. _____The line marked with an X and surrounded with yellow indicates the location of (a) a batholith (b) a deep-sea trench (c) the beginnings of a mid-oceanic spreading center (d) a transform fault
46. _____The mineral shown is formed from (a) covalent bonds of carbon (b) ionic bonds of carbon (c) ionic bonds of sodium and chloride (d) lead sulfide (e) single chains of silica tetrahedra
47. _____**T/F** In the figure shown, the minerals with the highest melting point are near the bottom of the figure.
48. _____Which of the volcanic landforms (a, b, or c) in the figure forms from the least viscous lava?
49. _____Which type of volcano is most likely to form during the eruption shown? (a) cinder cone (b) composite cone (c) shield volcano
50. _____Which of the following best describes the lava flow shown? (a) andesitic (b) basaltic with low viscosity (c) granitic with low viscosity (d) rhyolitic with high viscosity