

# Physical Geology

## Test 4

Fall, 2005

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

1. \_\_\_\_\_(T/F) The most common sediment covering the deep-ocean floor is sand.
2. \_\_\_\_\_(T/F) The deepest parts of the ocean occur in deep-ocean trenches.
3. \_\_\_\_\_(T/F) The farther an earthquake recording station is from an earthquake, the greater the difference in arrival times of the P and S waves.
4. \_\_\_\_\_(T/F) Most earthquakes are produced by the rapid release of elastic energy stored in rock that has been subjected to great stress.
5. \_\_\_\_\_(T/F) Transform faults typically join two segments of a mid-ocean ridge.
6. \_\_\_\_\_(T/F) The primary driving force for plate movement comes from the unequal distribution of gravity within Earth.
7. \_\_\_\_\_(T/F) Orogenesis is the name for the processes that collectively produce a mountain system.
8. \_\_\_\_\_(T/F) Most crustal deformation occurs near plate centers.
9. \_\_\_\_\_(T/F) Simply stated, the principle of fossil succession states that the physical, chemical, and biological laws that operate today have also operated in the geologic past.
10. \_\_\_\_\_(T/F) Many large mammals were rapidly eliminated during a wave of late Pleistocene extinctions.
11. \_\_\_\_\_(T/F) Plants are responsible for dramatically altering the composition of the entire planet's atmosphere.

12. \_\_\_\_\_ During the Pleistocene epoch (Ice Age) sea level was (a) higher than it is today. (b) lower than it is today. (c) the same as it is today.
13. \_\_\_\_\_ Who was the geologist who was also a ship captain in World War II and studied the ocean bottom with his ship? (a) Hess (b) Hutton (c) Wegener (d) Sykes
14. \_\_\_\_\_ Graded bedding is often due to (a) metamorphism (b) turbidity currents (c) volcanic eruptions
15. \_\_\_\_\_ Shells and skeletons of marine animals and plants form (a) biogenous sediment (b) hydrogenous sediment (c) sandstone
16. \_\_\_\_\_ Mid-ocean ridges indicated the presence of (a) convergent plate boundaries (b) deep-ocean trenches (c) divergent plate boundaries (d) transform-faulted plate boundaries
17. \_\_\_\_\_ The adjustments that follow a major earthquake often generate smaller earthquakes called (a) aftershocks (b) epicenters (c) foci (d) foreshocks
18. \_\_\_\_\_ A great wave created by an oceanic earthquake is called (a) an earthquake (b) a hurricane (c) a tsunami (d) a typhoon
19. \_\_\_\_\_ The deepest earthquakes occur (a) at midoceanic spreading centers (b) at rift valleys (c) at subduction zones (d) at transform fault
20. \_\_\_\_\_ In unconsolidated materials saturated with water, earthquake vibrations can generate a phenomenon called (a) creep (b) frost heave (c) liquefaction (d) solifluction
21. \_\_\_\_\_ The central problem with Wegener's theory of continental drift was (a) drift implies ice ages, which didn't occur in the time of dinosaurs (b) he could not develop an acceptable mechanism for how the plates moved (c) he put subduction zones in the wrong place (d) he was German in a time when Americans were at war with Germany
22. \_\_\_\_\_ The youngest oceanic crust is located at (a) at continental mountains (b) at midoceanic ridges (c) at subduction zones (d) at trenches
23. \_\_\_\_\_ Which of the following is not evidence of plate tectonics? (a) age-dating of oceanic crust (b) anthropological data on human development (c) location of earthquakes and volcanoes (d) measurements of plate movement (e) paleomagnetic striping
24. \_\_\_\_\_ The tectonic plates are large segments of Earth's (a) asthenosphere. (b) core (c) lithosphere (d) mantle
25. \_\_\_\_\_ An accumulation of sedimentary and metamorphic rocks, including occasional scraps of ocean crust, that forms in association with a subduction zone is called (a) an accretionary wedge (b) a trench (c) a tsunami (d) a volcano
26. \_\_\_\_\_ Evidence of crustal uplift occurs most along (a) the West Coast of the United States (b) the East Coast of the United States (c) the Gulf of Mexico
27. \_\_\_\_\_ A present-day active margin of a continent is seen along (a) the East Coast of the United States (b) the west Coast of the United States (c) the Gulf of Mexico
28. \_\_\_\_\_ Which of the following mountain ranges is *not* formed from a continent-continent collision? (a) Andes (b) Appalachians (c) Himalayas (d) Urals
29. \_\_\_\_\_ An example of an island arc formed from one oceanic plate being subducted under another is (a) the Andes (b) the Alps (c) Japan (d) the Urals

30. \_\_\_\_\_To assume that rock layers that are inclined have been moved into that position by crustal disturbances is to apply a principle of relative dating known as (a) cross-cutting relationships (b) fossil succession (c) original horizontality (d) superposition
31. \_\_\_\_\_To state that “in an undeformed sequence of sedimentary rocks the oldest rock is at the bottom” is to use a basic principle of relative dating called the law of (a) cross-cutting relationships (b) fossil succession (c) original horizontality (d) superposition
32. \_\_\_\_\_The are few Mesozoic rocks in Iowa. This may be explained by all of the following *except* (a) Iowa was not in its present location during the Mesozoic (b) they eroded away (c) they were never deposited
33. \_\_\_\_\_The fact that fossils succeed one another in a definite and determinable order is known as the principle of (a) cross-cutting relationships (b) fossil succession (c) original horizontality (d) superposition
34. \_\_\_\_\_Which of the following are used to calculate the ages of rocks and minerals? (a) craton (b) orogenesis (c) radiometric dating (d) seismology
35. \_\_\_\_\_In the essay on evolution and antibiotic-resistant bacteria, I encouraged you to take all (not just some) of your antibiotics because (a) doctors don’t wash their hands very often (b) gonorrhoea can kill you (c) the next time you get sick, the remaining more-resistant bacteria will multiply (d) they cost a lot
36. \_\_\_\_\_In the essay on the death of the dinosaurs, a piece of evidence we discussed was (a) dinosaur bones with embedded meteorite fragments (b) gypsum encased in glass spheres (c) worldwide cooling

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

37. \_\_\_\_\_The feature shown forms (a) due to the sudden sinking of a seamount (b) due to the gradual subsidence of an oceanic volcano (c) due to the rapid accumulation of sediment (d) due to a meteorite impact
38. \_\_\_\_\_The figure shown demonstrates (a) that P waves travel faster than S waves. (b) that some earthquakes generate P waves and some generate S waves and surface waves. (c) that P waves cause most of the destruction of the earthquake (d) that time seems to go more slowly during an earthquake.
39. \_\_\_\_\_The slide presents evidence that (a) the creature shown could swim long distances (b) the continents were once joined (c) that similar species exist on both South America and Africa (d) that fossils are abundant everywhere
40. \_\_\_\_\_The place we've talked about in class that is most similar to the Rift Valley shown is (a) the Andes (b) the New Madrid, MO, fault zone (c) the Himalayas (d) the Mariana trench
41. \_\_\_\_\_The pattern of yellow and red striping is meant to indicate (a) differences in age of rocks (b) differences in fossils preserved in the rocks (c) differences in paleomagnetism preserved in the rocks (d) differences in the oxidation state of the rocks
42. \_\_\_\_\_The pattern of earthquakes shown at point X results from (a) the artist's imagination (b) a newly forming midoceanic spreading center (c) a rift valley (d) a subduction zone
43. \_\_\_\_\_Circled in red is (a) an angular unconformity (b) an anticline (c) a dome (d) a syncline
44. \_\_\_\_\_The floating wood blocks shown demonstrate all of the following *except* (a) isostasy (b) most of an iceberg is underwater (c) most wood floats (d) oceanic plates are denser than continental plates (e) tall mountains have deep roots
45. \_\_\_\_\_The feature circled in yellow is (a) an angular unconformity (b) an anticline (c) a dome (d) a syncline
46. \_\_\_\_\_The creature shown is from which time period? (a) Cenozoic (b) Mesozoic (c) Paleozoic (d) Precambrian
47. \_\_\_\_\_The rapid growth in the abundance of reptiles on the figure shown is due to (a) being warm-blooded (b) their ability to lay eggs on land (c) their big teeth (d) their scales
48. \_\_\_\_\_The crater shown is (a) the burial site for most dinosaurs (b) due to a meteor or comet impact (c) due to a nuclear explosion (d) the site of Crater Lake
49. \_\_\_\_\_The area in white on the Iowa-Wisconsin border is (a) the area that wasn't covered by glaciers (b) the location of the last stage of glaciation (c) the poorest section of the Midwest (d) the source of the Mississippi River
50. \_\_\_\_\_The figure demonstrates that (a) P waves don't penetrate liquids (b) P waves don't penetrate solids (c) S waves don't penetrate liquids (d) S waves don't penetrate solids
51. \_\_\_\_\_The spot marked by a Y is (a) the epicenter of an earthquake (b) the focus of an earthquake (c) a nuclear explosion