Physical Geology

Test 4

Spring, 2005

Please enter your answer in the blank provided. The last page of questions are from slides that we will look at together later in the test.

1. _____(T/F) The two main types of continental margins are passive and active.
2. _____(T/F) The deepest parts of the ocean occur in deep-ocean trenches.
3. _____T/F) Most earthquakes are produced by the rapid release of elastic energy stored in rock that has been subjected to great stress.
4. _____(T/F) Meteorites provide an important clue to Earth's internal composition.
5. _____(T/F) To explain continental drift, Wegener proposed that the continents broke through the oceanic crust, much like ice breakers cut through ice.
6. _____(T/F) Hot spots are believed to be created by mantle plumes.
7. _____(T/F) Orogenesis is the name for the processes that collectively produce a mountain system.
8. _____(T/F) Most mountain building occurs in tensional environments.
9. _____(T/F) The "matching-up" of rocks from similar ages but different regions is referred to as correlation.
10. _____(T/F) The fact that fossils succeed one another in a definite and determinable order is known as the principle of fossil succession.
11. _____(T/F) When magma works its way into a rock and crystallizes, we can assume that the intrusion is younger than the rock that has been intruded.
12. _____(T/F) Plants are responsible for dramatically altering the composition of the entire planet's atmosphere.

13. _____Rocks direclty under Dubuque are of which age? (a) Cenozoic (b) Mesozoic (c) Paleozoic (d) Precambrian

14. _____Which of the following is the most common sediment covering the deep-ocean floor (a) boulders (b) gravel (c) sand (d) mud

15. _____The continental shelf of North America is widest (a) on the Atlantic coast (b) on the Pacific coast

16. _____During the Pleistocene epoch (Ice Age) sea level, which of the following was higher than it is today? (a) carbon dioxide levels (b) number of mammoths (c) sea level (d) temperature

17. _____Shells and skeletons of marine animals and plants form which of the following types of sediment? (a) biogenous (b) hydrogenous (c) terrigenous

18. _____Turbidites are characterized by a decrease in sediment grain size from bottom to top, a phenomenon known as (a) an angular unconformity (b) an anticline (c) calving (d) graded bedding

19. _____The location on the surface directly above the focus of an earthquake is (a) an anticline (b) the epicenter (c) San Francisco (d) the seismograph

20. _____Almost 95 percent of the energy released by earthquakes originates (a) at the San Andreas fault (b) from solar energy (c) from mountain building (d) in a few relatively narrow zones that wind around the globe.

21. _____In unconsolidated materials saturated with water, earthquake vibrations can generate a phenomenon called (a) crapulence (b) inebriation (c) intemperance (d) liquefaction

22. _____Most of our knowledge of Earth's interior comes from the study of (a) deep mines (b) drilling cores (c) earthquakes (d) impact craters

23. _____The area of earthquake and volcanic activity that encircles the Pacific ocean basin is called (a) American Samoa (b) the Pacific Rim (c) Ring of Fire (d) the Silmarillion

24. _____(T/F) Thermal convection in the mantle which ultimately drives plate motion is due to the unequal distribution of heat inside Earth.

25. _____At which of the following locations is oceanic crust likely to be oldest? (a) mid-oceanic spreading centers (b) transform faults (c) oceanic trenches

26. _____At which of the following locations are earthquakes associated with the deepest foci? (a) divergent boundaries (b) subduction zones (c) transform boundaries

27. _____Which of the following is an example of an oceanic-oceanic convergent boundary? (a) the Andes (b) Japan (c) the San Andreas fault (d) the Ural Mountains

28. _____Continental collisions are responsible for producing all of the following mountains **except** (a) the Alps (b) the Appalachians (c) Mount Fuji in Japan (d) the Urals

29. _____The time required for one-half of the nuclei in a radioactive sample to decay is called the isotope's (a) atomic mass (b) characteristic equation (c) chronology (d) half-life

30. _____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 (a) cross-cutting relationships (b) inclusions (c) original horizontality (d) superposition

31. _____Which of the following is known as the Age of Mammals? (a) Cenozoic (b) Mesozoic (c) Paleozoic (d) Pre-Cambrian

32. _____A submerged seamount with a flat top, discovered by Harry Hess, is called (a) an anticline (b) an atoll (c) a guyot (d) a lagoon

33. _____In the essay, *Evolution and Antibiotic-Resistant Bacteria*, which of the following was used as an example for the rapid development of resistance to antibiotics? (a) flu (b) gonorrhea (c) HIV (d) malaria

34. _____The stable interior portion of a continent of greatest age is called (a) the continental interior (b) a craton (c) an inclusion (d) a protolith

35. _____Which of the following was a Princeton professor and boat captain responsible for much of the development of plate tectonics? (a) Hess (b) Sykes (c) Vine (d) Wegener

36. _____Which of the following is *not* evidence supporting plate tectonics (a) ancient climates (b) the continental jigsaw puzzle (c) fossils matching across the seas (d) the law of cross-cutting relationships (e) matchup across oceans of rock types and structures

37. _____Which of the following most closely matches the rate at which plates move? (a) the average velocity of American trains (b) the growth rate of fingernails (c) the movement of the Earth around the sun (d) the crawling speed of a slug

38. _____Which of the following types of radiometric dating allows us to estimate the age of substances that were once part of living organisms? (a) potassium-argon (b) radiocarbon (c) strontium (d) uranium-lead

From the Slides

39. _____The feature marked X in the figure shown is (a) an atoll (b) a caldera (c) a dome (d) a guyot

40. _____Station X (shown in the figure) receives P waves from an earthquake 5 second before the S waves arrives. Station Y (not shown) receives P waves from an earthquake 4 seconds before the S waves arrive. Which of the following are true? (a) Station X is closer to the epicenter of the earthquake than station Y. (b) Station Y is closer to the epicenter (c) Stations X and Y are an equal distance from the epicenter. (d) We can't tell which station is closer to the epicenter.

41. _____The figure shown is intended to demonstrate which of the following: (a) Many species can survive long ocean trips. (b) Species introduced from foreign ecosystems may decimate local populations. (c) The existence of ancient land animals on different continents is easily explained if the continents were once joined. (d) The same species commonly exists on multiple continents.

42. _____The Rift Valley in East Africa is similar to the area (a) of the fjords of Norway (b) of the San Andreas Fault (c) surrounding Mt. St. Helens (d) underlying the Mississippi River up through New Madrid, Missouri

43. _____The pattern in the figure shown is intended to indicate (a) difference in iron content (b) the direction of movement on transform faults (c) paleomagnetic reversals (d) the relative density of oceanic crust segments

44. _____The pattern marked with a X results from (a) depth of wells that have found oil (b) location of earthquakes at a subduction zone (c) location of the leading edge of a subducting plate a various times in the past (d) melting points of various minerals

45. _____The feature circled in red is (a) an anticline (b) a dome (c) a syncline (d) an unconformity

46. _____The figure shown was created to demonstrate the principle of (a) buoyancy (b) cross-cutting relationships (c) glaciation (d) Isostasy

47. _____The feature marked with an X and circled in yellow is (a) an anticline (b) an angular unconformity (c) a dike (d) a sill

48. _____The fossil shown is (a) a broach (b) a cockroach (c) a mammoth (d) a saber-toothed tiger (e) a trailboard

49. _____The evolutionary development that allowed reptiles to become dominant with respect to amphibians was (a) better eyesight (b) eggs that could be laid on land (c) teeth and claws (d) thick hides

50. _____What did UNO have from the Chicxulub crater that helped determine the cause of the death of the dinosaurs? (a) cores from oil wells (b) dinosaur bones (c) pictures (d) seismic data