Physical Geology

Test 4

Summer, 2003

Please enter your answer on a blue scantron. We will watch together the slides needed for the final questions.

1. Active continental margins constitute most of the rim of what ocean? (a) Arctic (b) Atlantic (c) Indian (d) Pacific

2. Which of the following was **not** one of the things Alfred Wegener observed? (a) the creation of new oceanic crust at mid-ocean spreading centers (b) continuation of mountain belts and mineral deposits on opposite sides of the ocean (c) the pattern that the continents formed in indicating that the continents were once joined (d) the similarity of fossils on opposite sides of the oceans

3. Which of the following was a Princeton geologist who captained a ship in World War II and discovered guyots? (a) Harry Hess (b) James Hutton (c) Wilson Sykes (d) Alfred Wegener

4. What is a guyot? (a) one of the mountains comprising a mid-ocean ridge (b) a flat-topped, submerged seamount (c) a long, narrow feature that comprises the deepest part of the oceans (d) a rim of coral surrounding a seamount

5. Which type of seafloor sediment consists of the shells of small organisms? (a) biogenous (b) homogeneous (c) terrigenous (d) hydrogenous

6. What is the name of the parts of the ocean where new basaltic crust is created? (a) guyots (b) active continental margins (c) mid-ocean ridges (d) atolls

7. A deep-sea trench marks (a) the boundary between the continental shelf and continental slope (b) the boundary between two diverging plates (c) the boundary between two plates, one of which is subducting (d) the site of deep earthquakes

8. The location of the source of an earthquake is called: (a) the focus. (b) the displacement. (c) the epicenter. (d) the rebound.

9. The location of the on the land surface above source of an earthquake is called: (a) the focus. (b) the displacement. (c) the epicenter. (d) the rebound.

10. Of the seismic waves produced by an earthquake, which type travels fastest? (a) long waves (b) s-waves (c) p-waves (d) surface waves

11. The difference in velocity of p and s waves helps us determine (a) the direction to the source of the earthquake (b) the distance to the source of the earthquake (c) the magnitude of the earthquake (d) the type of rock that broke to create the earthquake

12. The seismic boundary between the crust and the mantle is called: (a) the Mohorovicic discontinuity. (b) the asthenosphere. (c) the Wadati-Benioff zone. (d) the shadow zone.

13. Which of the following is **not** a type of rock deformation (a) brittle (b) elastic (c) plastic (d) seismic

14. The worldwide distribution of earthquakes helps us with all of the following **except** (a) designing building codes (b) determining the structure of the Earth's interior (c) determining plate boundaries (d) predicting future earthquakes (e) predicting global climate change

15. The weak layer in the upper mantle that allows for plates on the Earth's surface to move is called the (a) the Mohorovicic discontinuity. (b) the asthenosphere. (c) the Wadati-Benioff zone. (d) the shadow zone.

16. Which of the following kills more people in the U.S. in an average year? (a) automobile accidents (b) contaminated water (c) earthquakes (d) tornadoes

17. The main objection to Wegener's hypothesis was: (a) paleomagnetism refuted his arguments (b) the shapes of North America and Europe didn't match up (c) glacial striations in the Southern Hemisphere (d) there was no known mechanism capable of moving continents

18. Which of the following is **not** likely to be found in a rift valley? (a) granitic intrusions (b) hot springs (c) basalt (d) volcanoes

19. Magnetic reversals in the North Atlantic oceanic crust helped show that: (a) the theory of seafloor spreading was incorrect. (b) the age of the Earth was much younger than expected. (c) crust was being destroyed at the mid-ocean ridge. (d) the ocean was spreading parallel to the mid-ocean ridge.

20. At which of the following locations are the deepest earthquakes likely to occur (a) continent-continent collisions (b) mid-ocean spreading centers (c) subduction zones (d) transform margins

21. Most basaltic volcanic activity is associated with what type of plate boundary? (a) hot spots (b) divergent (c) convergent (d) transform

22. The most widely believed theories explaining the mechanism that drives plate tectonics all rely on the idea of: (a) slab-pull. (b) slap-push. (c) plumes that rise from the core. (d) unequal heat distribution within the Earth.

23. Which of the following locations is the best example of a continental-oceanic convergence zone? (a) the Aleutian Islands (b) the Hawaiian Islands (c) Japan (d) the west coast of South America

24. Which of the following is **not** an example of what forms during a continent-continent collision? (a) the Appalachian Mountains (b) a continental volcanic arc (c) fold-type mountains (d) the Himalayas

25. Which of the following plates seems to have moved the greatest distance during the breakup of Pangaea? (a) Africa (b) India (c) North America (d) South America

26. Fossils of marine organisms found at high elevations in mountain ranges are believed to suggest: (a) sea level was once higher than the mountains. (b) the fossils are not really marine organisms (c) mountain ranges consist of only oceanic crust (d) the rocks in these mountains were once below sea level and were later uplifted

27. What is the name of the theory that the crust "floats" in gravitational balance on a more dense mantle? (a) gravity (b) orogenesis (c) mountain roots (d) isostacy

28. Which of the following looks most like the arch above an entryway? (a) anticline (b) syncline

29. Which of these has not been proposed as a mechanism for orogenesis? (a) subduction of oceanic lithosphere (b) small crustal fragments colliding and merging with continents (c) sliding of plates at a transform margin (d) collision of large continents

30. An igneous rock that shoots through a sedimentary rock must be younger than that sedimentary rock. This is an example of what principle? (a) unconformity (b) superposition (c) original horizontality (d) inclusion (e) cross-cutting relationships

31. When each day we pile the mail in a stack on our desk, the oldest mail is at the bottom of the stack. This is an analogy of the geologic principle of (a) unconformity (b) superposition (c) original horizontality (d) inclusion (e)cross-cutting relationships

32. Which of the following is an example of a disease that was once treated with penicillin but has now developed a resistance to it? (a) AIDS (b) gonorrhea (c) lung cancer (d) malaria

33. When erosion removes some of the rock that forms the geologic record, the gap is called (a) an isotope. (b) a cross-cutting relationship. (c) an intrusion. (d) an unconformity. (e) an inclusion.

34. Different atoms of the same element but containing different numbers of neutrons are called: (a) nuclei. (b) ions. (c) alpha particles. (d) isotopes. (e) radioactivity.

35. Which isotopic system is commonly used for dating objects a few thousand years old? (a) rubidium–strontium (b) uranium 235–lead 207 (c) radiocarbon (d) potassium–argon (e) uranium 238–lead 206

36. The first 85% of the history of the Earth, about which geologists know very little, is called: (a) the Cenozoic. (b) the Paleozoic. (c) the Precambrian. (d) the Proterozoic. (e) the Cambrian.

37. The contribution of the UNO Department of Geology to understanding the death of the dinosaurs was primarily related to (a) collecting iridium-concentration data from rocks of late Cretaceous age (b) employing an expert on dinosaurs (c) gathering seismic data about the impact crater (d) storing and studying cores from oil well in the Yucatan Peninsula

38. Fossils were first preserved in abundance in rocks when (a) Earth cooled sufficiently (b) the oceans developed (c) organisms developed hard parts (d) volcanic activity slowed

39. The Cenozoic Era is commonly referred to as (a) the Age of Dinosaurs (b) the Age of Invertebrates (c) the Age of Mammals (d) the Age of Reptiles (e) the Age of Aquarius

40. The end of the Mesozoic Era is marked by all of the following **except** (a) the death of the dinosaurs (b) an increased abundance of mammals (c) a major impact of Earth by a bolide (d) a significant increase in oxygen in the atmosphere

41. Which of these organisms, probably the first type to develop on Earth, does not require oxygen to live? (a) anaerobic bacteria (b) photosyntheses (c) eukaryotes (d) pangaea

From the slides:

42. The highlighted area in the central U.S. is all of the following **except** (a) above a continental hotspot (b) above an ancient rift valley (c) an area of increased probability of earthquakes (d) the New Madrid Fault Zone

43. Which of the following best describes the area that I will point to? (a) active continental margin (b) hot spot (c) passive continental margin (d) subduction zone

44. The structure forming in the slide is (a) an atoll (b) a barrier island (c) a guyot (d) a hot spot

45. The slide shown demonstrates the principle of (a) cross-cutting relationships (b) inclusions (c) isostasy (d) original horizontality

46. The organism shown in the slide is (a) a clam (b) a giant New Orleans cockroach (c) a rare clawless crawfish (d) a trilobite

47. Which of the following is **not** represented in the slide? (a) a deep-sea trench (b) Japan (c) an oceanic hotspot (d) a subduction zone (e) a volcanic island arc

48. The pattern of red, yellow, and blue dots indicate (a) the changing depth of earthquakes at subduction zones (b) the relative depths at which different minerals in subducting plates melt (c) the location the source of magma for volcanoes (d) the depths of successful oil wells

49. The equipment shown can be used for all of the following **except** (a) determining the arrival times of p and s waves (b) determining the direction from which earthquake waves originate (c) determining if nuclear weapons have been exploded underground (d) determining magnitude of earthquakes

50. The type of fault shown is (a) normal (b) reverse (c) strike-slip (d) thrust