Physical Geology

Test 2

Fall, 2005

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

1. **(T/F)** In Bowen's reaction series, the minerals that form last are the most susceptible to chemical weathering.
2. **(T/F)** Of the three general soil types, laterites are the least suitable for agriculture.
3. **(T/F)** The geographic setting where sediment is accumulating is referred to as the environment of deposition.
4. Lithification refers to the processes by which unconsolidated sediments are transformed into solid sedimentary rocks.
5. **(T/F)** Unlike confining pressure which "squeezes" a rock along one plane, differential stress acts equally in all directions.
6. **(T/F)** Regional metamorphism produces the greatest volume of metamorphic rock.
7. **(T/F)** Mass wasting will most likely occur when materials are at an angle that is less than their angle of repose.
8. **(T/F)** Solifluction is a common form of mass wasting in tropical deserts.
9. **(T/F)** The combined effects of mass wasting and running water produce stream valleys.
10. **(T/F)** Gravity is the controlling force of mass wasting.
11. **(T/F)** Slump is a process that commonly occurs when a valley wall is oversteepened by a meandering river.
12. **(T/F)** Liquefaction occurs during an earthquake when water-saturated materials lose their strength and behave as fluidlike masses that flow.
13. Which government organization was Franklin Roosevelt responsible for creating? (a) Bureau of Land Management (b) Department of Energy (c) Environmental Protection Agency (d) Soil Conservation Service

14. In the story of Lake Peigneur, which of the following best explains why Texaco was drilling in the middle of the lake? (a) it's easier to drill through soft lake-bottom sediments (b) lake sediments have organic material that forms oil (c) oil accumulates around salt domes (d) Texaco was lost, meaning to drill in Texas

15. Which of the following continents does not have an OPEC member? (a) Africa (b) Asia (c) North America (d) South America

16. Which of the following is most resistant to chemical weathering? (a) feldspar (b) gypsum (c) mica (d) quartz

17. For biological erosion, which of the following has the most impact? (a) frost wedging (b) microorganisms (c) tree roots (d) worms

18. Which of the following will most increase erosion? (a) building dams (b) building parking lots (c) deforestation (d) plowing parallel to topographic contours

19. Which of the following is a component of the atmosphere that causes rainwater to be slightly acidic? (a) carbon dioxide (b) helium (c) nitrogen (d) oxygen

20. In which of the following environments is chemical weathering likely to be most severe? (a) dry and cold (b) dry and warm (c) wet and cold (d) wet and warm

21. In which of the following locations are people likely to settle when the first move into a previously unsettled area? (a) deserts (b) hillsides (c) mountaintops (d) stream floodplain

22. Which of the following is most important in the formation of a soil profile? (a) downward movement of water (b) presence of feldspar (c) presence of limestone (d) worms

23. What biochemical rock made of calcium carbonate is commonly used for writing? (a) chalk (b) graphite

24. Which of the following features found in sedimentary rocks do *not* give clues to past environments? (a) graded bedding (b) mineral content (c) mud cracks (d) ripple marks

25. Which of the following is *not* an example of a transitional environment? (a) deltas (b) lagoons (c) river floodplain (d) tidal flats

26. During the formation of coal, stagnant swamp water prevents the complete decay of plant material by cutting off exposure to (a) carbon dioxide (b) heat (c) oxygen (d) pressure

27. This element causes rotten eggs to stink and is a component of coal that is ultimately responsible for adverse ecological effects of acid precipitation: (a) DNA (b) kerogen (c) protein (d) sulfur

28. Which of the following minerals breaks down into clays when weathered? (a) feldspar (b) halite (c) pyrite (d) quartz

29. Large grain size in clastic sedimentary rocks indicates (a) deposition in deep water (b) high pressures (c) slow cooling rates (d) transport by high fluid velocities

30. Cross-bedding in rocks is indicative of deposition in deltas or (a) deep water (b) lagoons (c) sand dunes (d) slopes of volcanoes

31. Mudcracks preserved on the surface of a rock indicate (a) the age of the rock (b) the bottom of the rock (c) the top of the rock (d) the side of the rock

32. Which of the following sedimentary environments yields the most poorly sorted sediments? (a) beaches (b) glaciers (c) sand dunes (d) stream floodplains

33. Which of the following energy resources is most linked to sedimentary rocks? (a) crude oil (b) fuel cells (c) hydroelectric energy (d) nuclear energy (e) solar energy

34. Which of the following is most likely to be a reservoir where oil may be located? (a) marble (b) quartzite (c) sandstone (d) shale

35. The lead and zinc deposits in the limestone fractures in the Dubuque are were transported there by (a) contact metamorphism (b) houseboats (c) hydrothermal solutions (d) magmatic intrusions

36. Which of the following is associated with mountain building? (a) burial metamorphism (b) contact metamorphism (c) hydrothermal metamorphism (d) fault-plane metamorphism (e) regional metamorphism

37. Which of the following is associated with magmatic intrusions? (a) burial metamorphism (b) contact metamorphism (c) hydrothermal metamorphism (d) fault-plane metamorphism (e) regional metamorphism

38. Which of the following serves to illustrate the fact that some rocks are transitional and do not clearly belong to any one of the three basic rock groups? (This rock is part metamorphic, part igneous.) (a) gneiss (b) migmatite (c) phyllite (d) schist (e) shale

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

39. In the area shown by the black area is a feature that millions of years later caused which of the following? (a) earthquake in New Madrid, Missouri, (b) flood in New Orleans (c) political corruption in Louisiana (d) volcanic eruption

40. Which of the following did *not* contribute to the erosion of the hillsides shown? (a) deforestation (b) the extermination of pigs (c) the poverty of the people (d) the use of tractors for plowing hillsides

41. Which of the following is *not* true about the picture shown? (a) chemical weathering (b) frost wedging (c) mechanical weathering

42. The two monuments shown are approximately the same age and located in similar climates. The differences in their appearance is due to (a) the craftsman's carving technique (b) dissolution of granite in weak acid (c) dissolution of limestone in weak acid (d) oxidation of iron

43. The rock shown is (a) breccia (b) conglomerate (c) sandstone (d) shale

44. In the picture shown, the sediment on the beach is likely to be which of the following (a) angular (b) feldspar (c) poorly sorted (d) sand-size

45. The rock shown is (a) gneiss (b) phyllite (c) schist (d) slate

46. This sample looks like either marble or quartzite. Which of the following would *not* be helpful in telling them apart? (a) acid text (b) hardness test (c) color

47. At the location circled, the Mississippi River and the Atchafalaya River come very close together. The Mississippi would go a much shorter distance to reach the Gulf of Mexico if it went down the path of the Atchafalaya. The reason is does not is (a) the Corps of Engineers won't let it (b) the Gulf is lower at the mouth of the Mississippi than at the mouth of the Atchafalaya (c) the Mississippi carries a lot more water (d) the Mississippi is older than the Atchafalaya

48. **(T/F)** Salt is more solid and dense than the overlying sand and shale.

49. The purple area in the map represents the area surrounded by the 12-foot contour. This shows (a) the area in New Orleans of highest elevation (b) the area in New Orleans where subsidence is most severe (c) the poorest section of the city (d) the site of a future lake

50. The picture shown is from the hills outside Laramie, Wyoming, formed of granite. The small crystal lying on the ground came from the granite. Their sharp cleavage surfaces make rock climbing easier, but a fall can lead to bad scrapes. The crystals are (a) calcite (b) feldspar (c) mica (d) olivine (e) quartz