

Example Questions - Exam 2 - Environmental Geology - GEOL

_____ 1. What was the trigger for the 1970 slide at Yungay, Peru that killed over 18,000 people?

- a. heavy precipitation
- b. snow melting from volcanic eruption
- c. road building
- d. earthquake
- e. none of these is correct

(Questions 2 to 5) List four things that contributed to the disaster at the Vaiont Dam in Italy in 1963.

- 2. _____
- 3. _____
- 4. _____
- 5. _____

_____ 6. Mexico City has subsidence problems due to withdrawal of _____ form soft sediments of an ancient _____

- a. ground water, horst
- b. ground water, fault
- c. ground water, well
- d. ground water, lake
- e. oil, ocean

_____ 7. A defense against mass wasting damage is

- a. to study an area's geology to become aware of potential mass wasting
- b. to avoid building in mass wasting prone areas
- c. to saturate a slope with water
- d. to undercut a slope
- e. a and b are both correct

_____ 8. During this time of year the earth experiences 12 hours of daylight and 12 hours of darkness.

- | | |
|-----------------------------|-----------------------------|
| A. Summer solstice | B. Autumnal Equinox |
| C. Vernal Equinox | D. Winter Solstice |
| E. Both A and D are correct | F. Both B and C are correct |

_____ 9. The earth's axis of rotation is at an angle of _____ to the plane of the ecliptic

- | | |
|-----------------|-----------------|
| A. 23.5° | B. 66.5° |
| C. 90° | D. 180° |

10. Loess flowed as a result of heavy rains in the mass wasting event that occurred in Gansu Province, China, 1920 (T or F)

11. Describe the events that caused the catastrophic collapse near Hutchinson, Ks.

_____ 12. Evaporation from the ocean surface tends to:

- A) Cool the ocean surface and warm the atmosphere

- B) Warm the ocean surface and warm the atmosphere
- C) reduce precipitation

_____ 13. When heated, air will tend to:

- A) Contract
- B) Expand
- C) Increase in density

_____ 14. The atmosphere of Earth is heated primarily from the ground (and ocean) up.

- A) true
- B) false

_____ 15. As you go up in the troposphere:

- A) air temperature goes up
- B) air temperature does not change
- C) air temperature fluctuates wildly
- D) air temperature goes down

_____ 16. The greatest real world example of an inversion layer in the atmosphere is the:

- A) troposphere
- B) stratosphere
- C) thermosphere
- D) tropopause

_____ 17. Extreme air pollution events in Denver, Colorado, are often associated with

- A) deep convection
- B) an inversion layer within the troposphere
- C) long range transport of air pollutants from the Ohio Valley
- D) long range transport of air pollutants from California

_____ 18. What is the most important circulation feature of the atmosphere?

- A. the Hadley convection cell
- B. the Ferrell convection cell
- C. the polar convection cell
- D. the mid-latitude westerlies

_____ 19. What happens when two different air masses meet?

- A. they become thoroughly mixed and lose their unique identity
- B. they stall out and gradually mix
- C. they do not mix easily and well-defined boundaries separate the air masses

_____ 20. On what basis do we classify air masses?

- A. according to the direction from which they blow
- B. by the temperature and moisture characteristics of their source region
- C. by the temperature and moisture characteristics of their destination
- D. according to their atmospheric pressure

E. both b and d are correct

Use the nearest letter on the surface weather map illustrated below to identify each of the following:

- 21. warm front
- 22. cold front
- 23. occluded front
- 24. Stationary front.

There will be diagram of a warm front, cold, front, occluded front system included if this type of question is used on an exam.

25. Use the nearest number on the map above to identify the region with warm southerly winds at the surface.

- A. 1
- B. 2
- C. 3
- D. 4

_____ 26. How do occluded fronts develop during the evolution of a mid-latitude wave cyclone?

- A. warm air rises due to thermal convection, leading to heavy rain
- B. a cold front often moves faster than a warm front and pushes in and under the warmer air
- C. a stationary front separating a polar and subtropical high becomes disturbed, immediately forming an occluded front
- D. Occluded fronts develop along coastal regions due to the convergence of warm and cold ocean currents

_____ 27. Does cyclogenesis tend to occur in certain preferred geographic locations?

- A. Yes
- B. No

_____ 28. Why does the wind blow?

- A. Coriolis effect
- B. friction in the planetary boundary layer
- C. differences in the moisture content of air
- D. differences in air pressure

_____ 29. The Inter-tropical Convergence Zone (ITCZ) is associated with:

- A. midlatitude wave cyclones
- B. the Ferrell convection cell
- C. the Hadley convection cell
- D. land-sea breezes

_____ 30. The peak tornado season for the central United States is:
A. winter B. spring
C. summer D. fall

_____ 31. Why are there more tornadoes in central United States than anywhere else worldwide?
A. because warm, moist air frequently collides with cool, dry air over the relatively flat Great Plains during springtime thunderstorms.
B. the weather observation network is more sophisticated in the U.S.A than elsewhere
C. the Coriolis effect is strong in this region and overwhelms the pressure gradient force.

_____ 32. Hurricanes are most common at the equator
A. True B. False

_____ 33. The peak hurricane season for the Northern Hemisphere is:
A. February B. April
C. September D. November

_____ 34. What causes the worst storm surge in a hurricane?
A. high wind B. water surface swells up under the low pressure
C. high tide D. A and C.
E. A, B and C

_____ 35. What is a positive feedback mechanism involved in hurricanes?
A. the latent heat of condensation
B. the jet stream
C. a mesocyclone in the mid-troposphere
D. adiabatic heating of the subsiding air in the central eye

_____ 36. Tornadoes most often form:
A. along a warm front
B. along a cold front
C. along an occluded front
D. in a single warm-moist air mass due to thermal convection

_____ 37. Which of the following surfaces has the highest albedo?
A) asphalt pavement
B) forest
C) snowfields
D) bare ground

_____ 38. The atmosphere of Earth is heated primarily from the ground (and ocean) up.
A) true
B) false

and know the details also know the frontal symbols	
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