

## **GEOLOGY 171: Earthquakes & Natural Disasters** Second Exam Fall 10/4/2012

**Instructions:** On the bubble sheet, darken the name *and* ID# bubbles; **LEFT JUSTIFY the ID #.**

If we have to manually enter your grade due to incorrect darkening of name or ID# bubbles, **3% will be subtracted from your grade for this exam.** Also **WRITE** in your name and ID# at the top of the bubble sheet.

*There are 50 questions worth 2 points each. Read each question carefully before selecting the best answer. The answer key will be on Blackboard after class. Grades may not be posted for a week.*

1. Decreasing the H<sub>2</sub>O content in cooling magma \_\_\_\_\_ the temperature at which it begins to solidify.
  - a) increases
  - b) decreases.
  - c) does not affect
2. Which of the following states has the highest level of earthquake hazard?
  - a) North Dakota
  - b) Iowa
  - c) Idaho
  - d) Florida
  - e) Kansas
3. Our ability to estimate the probability of where an earthquake will occur is best described as:
  - a) Both b and c
  - b) Good over longer timescales
  - c) Nonexistent over short timescales
  - d) Dependent on harmonic tremors
4. Which of the following does NOT affect magma viscosity?
  - a) Volume
  - b) Chemistry
  - c) Temperature
  - d) Pressure
5. Volcanoes such as Mt. St. Helens and Mt. Pinatubo generated superhot, turbulent clouds of ash and gasses capable of travelling 100 miles per hour known as:
  - a) Lahars
  - b) Cinder Streams
  - c) Pyroclastic Flows
  - d) Miasmic Currents
6. What are common topographic features associated with slip along the San Andreas fault?
  - a) volcanic cinder cones
  - b) offset drainage channels
  - c) shallow subsurface caves
  - d) Both A and B

7. What kinds of water bodies are associated with strike slip faults?
  - a) Sag ponds
  - b) Springs
  - c) Offset Streams
  - d) all of the above
8. What processes aid in the melting of rock?
  - a) Lowering Pressure
  - b) Raising Temperature
  - c) Both of these
9. The Cascade volcanoes are related to \_\_\_\_\_
  - a) Subduction of the North American plate under the Juan de Fuca plate
  - b) Subduction of the Juan de Fuca plate under the North American plate
  - c) Subduction of the Pacific plate
  - d) A pair of hot spots
10. The last volcanic eruption in California was \_\_\_\_\_
  - a) About 700,000 years ago
  - b) Successfully predicted by the U. S. Geological Survey
  - c) Fatal to more than 800 people
  - d) Several thousand years ago
  - e) Early in the 20th century
11. Most magma solidifies into minerals with structural tetrahedral formed from
  - a) Calcium and hydrogen
  - b) Silicon and iron
  - c) Potassium and sodium
  - d) Aluminum and iron
  - e) Silicon and oxygen
12. The most abundant gas dissolved in most magmas is
  - a) H<sub>2</sub>O
  - b) chlorine
  - c) argon
  - d) hydrogen
  - e) helium
13. The shaking experience in Mexico City in 1985 and in Oakland, California in the Loma Prieta earthquake indicated that ground amplification of shaking is most pronounced
  - a) when no buildings are present.
  - b) when buildings are present.
  - c) on solid bedrock.
  - d) on soft sediments.
14. The number of people killed in an earthquake is
  - a) strongly correlated to earthquake magnitude.
  - b) not strongly correlated to earthquake magnitude.

15. The Pacific plate moves northwestward about \_\_\_\_ per year relative to the North American plate.
- 20 feet
  - 2 feet
  - 2 inches
  - 2 micrometers
16. A replication of the 1811- 1812 New Madrid earthquakes would cause\_\_\_\_\_ in Kansas City.
- Relatively minor to moderate damage with Modified Mercalli VII intensity.
  - No damage at all
  - Major devastation
17. The most likely place for a magnitude 9 quake in the United States (other than Alaska) is \_\_\_\_\_.
- California
  - Nevada
  - Missouri and Arkansas
  - Oregon and Washington
  - Hawaii
18. What percentage of the Earth's eight largest earthquakes since 1900 occurred after January, 2004?
- 2%
  - 10%
  - 20%
  - 50%
  - 100%
19. Earthquakes with moment magnitude 9.0 or larger have occurred
- at divergent plate boundaries.
  - on transform faults.
  - in subduction zones
  - in all of these tectonic locations
20. In both Mexico City in the 1985 earthquake and in the Loma Prieta (World Series) earthquake, most of the deaths were related to \_\_\_\_\_.
- being close to the epicenter of the quake
  - being in buildings more than 25 stories tall that collapsed
  - construction on solid bedrock that transmitted the seismic waves efficiently
  - construction on unconsolidated sand, gravel, and clay that amplified the seismic waves
  - a tsunami
21. A volcanic explosion caused by groundwater coming near to or in contact with magma is \_\_\_\_\_.
- A pyrohydraulic event
  - A lateral blast
  - A volcanic bomb
  - A water spout
  - A phreatic explosion