

1) Where do the forces for most external processes on the Earth come from?

- A) The sun
- B) The ocean
- C) The atmosphere
- D) The magnetic field of the Earth
- E) The internal heat of the Earth

2) Natural Hazards differ from Disasters in that

- A) natural hazards have the potential to impact human life
- B) natural disasters refer to the effects of a hazard on a particular area at a particular time
- C) natural hazards only refer to earthquakes and volcanoes
- D) disasters mostly refer to hazards created by people

3) An earthquake in Mexico City with a moderate magnitude may cause a catastrophe rather than a disaster because:

- A) Mexico City is densely populated
- B) Some buildings in Mexico City are not well built
- C) Earthquake may produce slides
- D) Bridges and Highways may not be able to withstand a quake
- E) All of the above are reasons for a catastrophe.

4) Which of the following locations are not at risk for Hurricanes?

- A) Florida
- B) Louisiana
- C) Texas
- D) California
- E) All of the above are at risk for Hurricanes.

5) Which of the following areas of the United States are not at risk for any natural disaster?

- A) San Francisco, CA
- B) New York, NY
- C) Detroit, MI
- D) Miami, FL
- E) All areas of the United States are at risk for some kind of natural disaster

6) Which describes the recent trend in worldwide natural disaster occurrence?

- A) It has been decreasing steadily
- B) It has been decreasing exponentially
- C) It has remained constant
- D) It has been increasing steadily
- E) It has been increasing exponentially

7) Which of the following Hazards has the greatest potential for Catastrophe?

- A) Flood
- B) Landslide
- C) Drought
- D) Lightning
- E) Coastal Erosion

8) Which of the following Hazards causes the greatest number of deaths per year in the United States?

- A) Volcanoes
- B) Hurricanes
- C) Tornadoes & other windstorms
- D) Landslides
- E) Drought

9) Why do lightning strikes have a low potential for catastrophe?

- A) Lightning is very rare in general
- B) Lightning doesn't normally hurt people
- C) Lightning doesn't usually affect people and property on a large scale
- D) Lightning only occurs in the summer
- E) It is too easy to protect people and property from lightning strikes

10) Why would urbanizing a location increase that location's potential for catastrophe?

- A) People might be forced to live in low lying or unstable lands susceptible to slides or floods
- B) Urbanization would interfere with the drainage of the land making it more likely to flood, slide or subside
- C) Native plants would be removed increasing erosion of land
- D) Higher population density would cause damage to become greater
- E) All of the above are reasons why urbanization might increase catastrophes

11) Which of the following is something geologists look for in understanding the history of natural disasters in an area?

- A) Folds
- B) Faults
- C) Lava flows
- D) Soil
- E) All of the above

12) What is the importance of the notion that "hazards are repetitive"?

- A) We need to look to past events to understand what is probable for the future
- B) If something has already happened, like a volcanic eruption, then we won't need to worry about it
- C) New events will probably happen exactly like old ones, so we need to be prepared
- D) Hazards keep happening constantly in an area, so people already know how to react to them
- E) All of the above are true

13) Which of the following is not one of the Geologic Cycles?

- A) The Tectonic Cycle
- B) Kreb's Cycle
- C) The Rock Cycle
- D) The Hydrologic Cycle
- E) The Biogeochemical Cycle

14) Which of the following would not be part of the Tectonic Cycle?

- A) Earthquakes
- B) Volcanoes
- C) Mountain Building
- D) Hurricanes
- E) Continental formation

15) How do Igneous Rocks form?

- A) Crystallization of magma
- B) Deposition of sediment
- C) Transportation of sediment
- D) Heat from earth's core
- E) Earthquakes create them

16) Why is the Rock Cycle considered a "cycle"?

- A) Rock goes from one form to the next in a very strict order
- B) Rock material is constantly being recycled into different forms or back to magma
- C) Rocks are round like a cycle
- D) Rocks periodically change on a set time scale
- E) It describes one form that rocks can take in their lifetimes

17) The energy for the Hydrologic Cycle comes from

- A) the magnetic field of the earth
- B) heat from the sun
- C) heat from the earth's core
- D) gravity between the earth and moon
- E) ocean currents

18) How long would it take for one drop of water to go through the entire hydrologic cycle?

- A) days
- B) years
- C) hundreds of years
- D) thousands of years
- E) tens of thousands of years or more

19) The global climate is currently warming. Which of the following is not an impact this might have on natural hazards?

- A) Sea levels will rise, causing more erosion
- B) Magma will rise, causing more volcanoes
- C) Deserts are likely to expand
- D) Warmer ocean water will increase storm activity
- E) All of the above are impacts of climate change

20) Why it is necessary for scientists to study natural hazards?

- A) A study of natural hazards can tell us where different hazards are possible.
- B) A study of natural hazards can tell us what effects to expect from a hazard
- C) A study of natural hazards can tell us what effects we may have on the frequency of a hazard
- D) A study of natural hazards may give us more time to make predictions and warnings
- E) All of the above are reasons why scientists study natural hazards

21) Which of the following constitutes a prediction rather than a forecast for a natural event?

- A) An 4.5 magnitude earthquake will occur in Tacoma, WA on August 15, 2006 at 2pm.
- B) Landslides are expected in the Tacoma, WA area throughout the weekend.
- C) Tremors from an earthquake may cause damage to poorly built structures.
- D) There is a 50% chance of thunderstorms in the Seattle region on Saturday.
- E) Four to five inches of rain may fall with the category 2 storm off of the coast of Alabama.

22) Which of the following is a misconception about natural hazards?

- A) Natural hazards are caused by humans
- B) Any natural hazard can happen in any location at any time
- C) Scientists have no idea where or when a hazard may occur
- D) Natural hazards are always dangerous and always cause disasters
- E) All of the above are misconceptions about natural hazards

23) Which of the following is not true about the concept of uniformitarianism as related to natural disasters?

- A) If you have earthquakes in a location, then you will probably have them in the future
- B) The reason why volcanoes erupt today is the same as it was in the past
- C) The processes that caused the erosion of the land have been doing their work since the Earth's formation
- D) Natural disasters are a natural part of the Earth, nothing that humans can do will affect them
- E) All of the above are true about uniformitarianism

24) Choose the best answer: Do humans have an effect on the frequency of natural disasters?

- A) No. Natural disasters are caused by forces internal to the Earth
- B) No. Natural disasters are random and people cannot affect them
- C) Maybe. Some natural disasters are random, but some are caused by humans
- D) Yes. Land use by humans can increase natural disasters such as flooding or landslides
- E) Yes. Humans can control many natural disasters such as earthquakes and tornadoes

25) Which of the following is used to calculate risk?

- A) Probability of event
- B) Amount of property damage expected
- C) Number of deaths possible
- D) Amount of damage to roads and bridges
- E) All of the above are used to calculate risk

26) Which of the following statements best explain why events that have caused disasters in the past are now causing catastrophes?

- A) People are less aware of disasters and are less prepared.
- B) Governments are not as interested in preparing for disasters as they are for other

- C) Human population growth has caused a greater concentration of population in certain areas and puts a greater demand on earth's resources.
- D) The earth is aging and therefore becoming more prone to natural hazards.
- E) Scientists understand less today about disasters than they did in the past.

27) On what does the impact of Natural Hazards depend?

- A) Climate
- B) Magnitude of the event
- C) Frequency of event
- D) Land use
- E) All of the above affect the impact of natural hazards

28) Which of the following is not an anticipatory response to the problem of flooding?

- A) Restricting building on sections of the floodplain
- B) Requiring insurance for homes built in potentially hazardous areas
- C) Building dams to control the water flow
- D) Delivering food and clothing to the most hard-hit areas
- E) Evacuating people before the floodwaters rise

29) Which of the following is not a reactive response to Hurricane Katrina?

- A) Levees are raised
- B) Homes are rebuilt
- C) People are given counseling for fears that they may still have
- D) Communication lines are restored
- E) Money is given by the government to rebuilt small businesses

30) Which of the following is an anticipatory response to earthquakes in San Francisco?

- A) Monitoring along the San Andreas and other fault lines
- B) Earthquake drills conducted in schools
- C) Retrofitting older buildings that don't meet earthquake codes
- D) Providing a fund for insurance for victims of the possible earthquake
- E) All of the above are anticipatory responses to earthquakes

31) Which of the following is not true about benefits of natural hazards?

- A) Flooding can provide nutrients to the land
- B) Volcanoes add new islands
- C) Landslides can dam rivers to create new lakes
- D) Wildfires clear old growth to create new forests
- E) Natural hazards are never beneficial and always cause disaster

Natural Hazards, 3e (Keller):

Chapter 2

Internal Structure of the Earth and Plate Tectonics

32) Which of the following is the correct order of the layers of the Earth from inside to outside?

- A) inner core, outer core, crust, mantle
- B) inner core, mantle, outer core, crust
- C) crust, inner core, outer core, mantle
- D) inner core, outer core, mantle, crust
- E) mantle, inner core, crust, outer core

33) Which of the following best describes the internal structure of the earth?

- A) An orange, it has a thin peel with a solid, but watery inside
- B) A bowling ball, it is completely solid all the way through
- C) An egg, it is solid at the core, surrounded by liquid and then a hard outer shell
- D) A geode, it is hollow at the center with a strong, hard, outside layer
- E) A chocolate covered cherry, it is solid at the core surrounded by a liquid layer and semi-solid layer, then covered in a thin solid coating

34) What is the difference between the inner and outer core of the Earth?

- A) The inner core is liquid and the outer core is solid
- B) The inner core is made from magma and the outer core is metal
- C) The inner core is solid and the outer core is liquid
- D) The inner core is cool and the outer core is hot
- E) The inner core is hot and the outer core is cool

35) Which of the following is not true about the mantle?

- A) The mantle surrounds the outer core
- B) It is composed of iron- and magnesium-rich rocks
- C) The density of the rocks is higher than water
- D) The density of the rocks is lower than the outer core
- E) It is mostly liquid

36) What would be the correct relationship between the crust and the lithosphere?

- A) The crust sits on top of the lithosphere
- B) The lithosphere sits on top of the crust
- C) The lithosphere and the crust are the same thing
- D) The lithosphere contains both the oceans and the continents, the crust only includes continents
- E) The lithosphere is liquid, whereas the crust is solid

37) How do geologists know about the inside of the Earth?

- A) They have drilled holes into the Earth and sent sensors down to its center
- B) They study very large canyons that have been uplifted from the center of the Earth
- C) They study the movement of earthquake waves throughout the Earth
- D) They study the movement of water waves in the ocean
- E) They have built a ship that can dig into the Earth and take a team of scientists to its center

38) Where are earthquakes generally found?

- A) convergent boundaries
- B) divergent boundaries
- C) Transform Fault boundaries
- D) Hot spots
- E) Earthquakes are found on all of the above locations

- 39) Which of the following is true about Plate Tectonics?
- A) Explains that continents drift around the globe
 B) Explains that the earth's crust is split into plates that float on the ocean water
 C) It is a mostly discredited theory popular in the 1800's
 D) Explains that the earth's crust is split into plates that slip on the Asthenosphere layer of the earth
 E) None of the above are true about Plate Tectonics
- 40) What would you not expect to see at sites where plates are sinking?
- A) earthquakes
 B) volcanoes
 C) magma
 D) new seafloor
 E) All of the above occur where plates are sinking
- 41) Which of the following is true about the Mid-Atlantic Ridge?
- A) It is in the middle of the ocean
 B) It is a divergent boundary where tectonic plates move apart
 C) It is a place where new lithosphere is created
 D) It is a site of deep sea volcanoes and mountains
 E) All of the above are true about the Mid-Atlantic Ridge
- 42) The energy for Plate Tectonics comes from
- A) the magnetic field of the earth
 B) heat from the sun
 C) gravity between the earth and moon
 D) ocean currents
 E) heat from the earth's core
- 43) The Himalayas are associated with which of the following plate boundaries?
- A) Ocean-continent convergence
 B) Ocean-ocean convergence
 C) Continent-continent convergence
 D) Divergent
 E) Transform Fault
- 44) Why aren't volcanoes associated with continent-continent convergence?
- A) Both plates are buoyant too sink into the Asthenosphere
 B) The continental plate isn't hot enough to cause volcanoes
 C) Volcanoes are not associated with convergent plate boundaries
 D) Rising magma from melted plates can't break through continental crust
 E) Volcanoes only occur on islands in the ocean and not on land
- 45) If you wanted to draw the boundaries of plates on a globe, which of the following maps would give you the most complete information?
- A) map of active volcanoes
 B) map of mid-ocean ridges
 C) map of earthquake distribution
 D) map of the edge of continental shelves
 E) map of hot spots
- 46) The Hawaiian Islands are an example of:
- A) Two Ocean plates converging
 B) Two Continental plates converging
 C) Diverging plates
 D) Hot Spots
 E) Transform Fault Boundary
- 47) What is paleomagnetism?
- A) The study of the magnetism of rocks at their origin
 B) The study of magnetism during ice ages
 C) The study of magnetism at the Earth's core
 D) The study of magnetism of new magma
 E) The study of magnetism of the Earth's poles
- 48) What is the importance of magnetic reversals to the theory of Plate Tectonics?
- A) It causes earthquakes
 B) It provides evidence for seafloor spreading
 C) It causes volcanic eruptions
 D) It provides a mechanism for Plate Tectonics
 E) It explains times of rapid change on the Earth's surface
- 49) The youngest seafloor rocks are found:
- A) nearest to the mid-ocean ridges
 B) nearest to the continental shelves
 C) evenly distributed throughout the ocean
 D) underneath the continents
 E) where the ocean is the flattest
- 50) The geographic distribution of the Mesosaurus, a small swimming reptile that lived during the late Paleozoic, shows that the reptile lived on the southwest coast of what is now Africa and the southeast coast of what is now South America. This provides evidence that:
- A) A land bridge once existed between Africa and S. America
 B) The Atlantic Ocean was once much more shallow
 C) Africa and S. America were once joined into one continent
 D) Migration between Africa and S. America was once possible
 E) The Earth was once much smaller in size
- 51) Where would you find Ridge-push?
- A) At a convergent boundary
 B) At a divergent boundary
 C) At a transform fault boundary
 D) At a hot spot
 E) Between a continent and an ocean plate
- 52) Which of the following hazards would you expect to see at a Transform Fault boundary?
- A) Volcanoes
 B) Mid ocean ridges
 C) Earthquakes
 D) Hurricanes
 E) All of the above

53) Which of the following statements is false about the magnitude of earthquakes?

- A) Magnitudes of earthquakes are based on powers of ten.
- B) An earthquake of magnitude 3 on the scale is only slightly bigger than a 2.
- C) Great earthquakes can have a magnitude of 8 or higher.
- D) Over a million earthquakes of magnitude 2-2.9 is felt per year.
- E) The Richter Scale and Moment Magnitude scales are used to describe the magnitude of an earthquake.

54) How many earthquakes are there every year?

- A) About 10
- B) About 100
- C) About 1,000
- D) About 10,000
- E) About 1,000,000

55) What is the difference between earthquake Intensity and Magnitude?

- A) Only strong earthquakes have intensity
- B) Intensity refers to the effects that earthquakes have, Magnitude refers to energy released
- C) Intensity cannot be measured, but Magnitude can
- D) Intensity refers to energy released and magnitude refers to energy released
- E) Only weak earthquakes have intensity

56) Which scale would be most appropriate to describe the damage from an earthquake to structures and people?

- A) The Richter Scale
- B) The Moment Magnitude Scale
- C) The Modified Mercalli Scale
- D) The Fujita Scale
- E) The Warren Intensity Scale

57) Which scale would be most useful to describe the ground movement associated with an earthquake?

- A) The Richter Scale
- B) The Moment Magnitude Scale
- C) The Modified Mercalli Scale
- D) The Fujita Scale
- E) The Warren Intensity Scale

58) Which earthquake scale would be most appropriate to describe historic earthquakes where seismograph records are not available?

- A) The Richter Scale
- B) The Moment Magnitude Scale
- C) The Modified Mercalli Scale
- D) The Fujita Scale
- E) The Warren Intensity Scale

59) A Shake Map uses seismograph data to show _____

- A) areas of shaking.
- B) areas of earthquake intensity.
- C) areas of earthquake magnitude.
- D) areas where P-waves are concentrated.
- E) areas that are densely populated.

60) Which of the following best describes a fault?

- A) A place on the Earth where there are giant gaps or canyons
- B) A place on the Earth where there are caves or large holes hidden under the ground
- C) A place on the Earth where the continent meets the ocean
- D) A place on the Earth where there is a giant chasm usually filled with magma
- E) A place on the Earth where there is a break and both pieces are sliding against each other

61) How quickly do faults slip?

- A) millimeters per second
- B) millimeters per minute
- C) millimeters per day
- D) millimeters per year
- E) Faults don't ever slip

62) Earthquakes are found _____

- A) only on Convergent Plate Boundaries.
- B) only on Divergent Plate Boundaries.
- C) only on Transform Fault Boundaries.
- D) only on some plate boundary.
- E) on all plate boundaries and within the plates.

63) In which of the following faults does the hanging wall move down relative to the footwall?

- A) Normal Fault
- B) Reverse Fault
- C) Thrust Fault
- D) Blind Fault
- E) Strike Slip Fault

64) Which type of fault is a Transform Fault?

- A) Normal Fault
- B) Reverse Fault
- C) Thrust Fault
- D) Blind Fault
- E) Strike Slip Fault

65) What is a Blind Fault?

- A) A fault that cannot be seen
- B) A fault that is inactive
- C) A fault that is overly active
- D) A fault that is creeping slowly
- E) A fault that is not moving

66) Which of the following is false about Slow Earthquakes?

- A) They are not able to cause damage
- B) They can produce earthquakes with moderate magnitude
- C) They are the result of tectonic creep
- D) They can produce considerable damage to structures
- E) They rupture over long periods of time

67) Which of the following statements is false about P-waves?

- A) P-waves are the fastest of the waves.
- B) P-waves can move through solid, liquids, or gasses.
- C) P-waves move with a push/pull motion.
- D) P-waves cause the most damage in an earthquake.
- E) All of the above statements about P-waves are true.

68) Which wave is the last to reach the seismograph station?

- A) P-waves
- B) S-waves
- C) Surface waves
- D) Body waves
- E) All of the waves reach the station at the same time

69) Which wave produces the smallest amplitude?

- A) P-waves
- B) S-waves
- C) Surface waves
- D) Body waves
- E) All of the waves have the same magnitude

70) The distance to the epicenter of an earthquake is found _____

- A) by locating the area where most of damage is centered.
- B) by comparing the arrival times of the S-and P-waves.
- C) by comparing the magnitudes at different locations.
- D) by measuring the frequencies of waves at different stations.
- E) by watching to see where the tsunami forms.

71) Which of the following is true about seismographs taken far from the epicenter of the earthquake as compared to those that are closer?

- A) There will not be any P-waves detected
- B) There will not be any S-waves detected
- C) The P and S waves will be closer together
- D) The P and S waves will be further apart
- E) The amplitude of the waves will be larger

72) The amount of shaking that is felt from an earthquake depends on _____

- A) location with respect to the epicenter.
- B) depth of focus.
- C) direction of the epicenter.
- D) earth materials through which the waves move.
- E) All of the above.

73) Which of the following is false about the shaking from earthquakes?

- A) Deeper earthquakes cause greater ground shaking
- B) Places closer to the epicenter experience greater ground shaking
- C) Seismographs very far from the epicenter can detect shaking
- D) The direction to the epicenter can affect the amount of shaking
- E) The type of soil can affect the amount of shaking that is felt during an earthquake

74) Mexico City was built on mud deposits. How will this affect the earthquake hazard there?

- A) Earthquakes will be dampened there
- B) There will not be any earthquakes there
- C) Earthquakes shaking will be increased
- D) P waves will be seen, but not S waves
- E) There will be more earthquakes, but they won't travel far

75) During an earthquake, strain is released and then accumulated again until the next earthquake. This is a statement about _____.

- A) The Earthquake Cycle
- B) The Strain Cycle
- C) The Richter Cycle
- D) The Water Cycle
- E) The Rock Cycle

76) Which of the following places in the United States do not see earthquake hazards?

- A) Seattle, WA
- B) St. Louis, MO
- C) Los Angeles, CA
- D) Minneapolis, MN
- E) Las Vegas, NV

77) Strong earthquakes have been felt in Southeast Missouri, what causes these earthquakes?

- A) Dip-slip faults from Subduction
- B) Transform faults
- C) Dip-slip faults from divergent plate boundaries
- D) Dip-slip faults from convergent plate boundaries
- E) These are intraplate earthquakes

78) What causes earthquakes in San Francisco?

- A) Dip-slip faults from Subduction
- B) Transform faults
- C) Dip-slip faults from divergent plate boundaries
- D) Dip-slip faults from convergent plate boundaries
- E) These are intraplate earthquakes

79) Which of the following cause earthquakes with the greatest magnitudes?

- A) Dip-slip faults from Subduction
- B) Transform faults
- C) Dip-slip faults from divergent plate boundaries
- D) Dip-slip faults from convergent plate boundaries
- E) Intraplate earthquakes

80) Which of the following is not an effect of Earthquakes?

- A) Ground Rupture B) Liquefaction C) Volcanoes D) Fires E) Disease

81) Which kind of material would be prone to liquefaction during an earthquake?

- A) Sandy soil with water between the grains D) Volcanic rocks that are very porous
B) Clay-rich soil near salty oceans E) Any materials that have been saturated with water
C) Hard bedrock with groundwater underneath

82) Which of the following may be a threat to an area, after the initial shaking from the earthquake subsides?

- A) Fires C) Tsunami E) All of the above may threaten an area after initial shaking subsides.
B) Landslides D) Aftershocks

83) Which of the following hazards from an earthquake threaten areas that may not be close enough to feel shaking?

- A) Fires C) Tsunami E) Ground Rupture
B) Elevation changes D) Liquefaction

84) Which of the following is a reason why building a reservoir would increase earthquakes?

- A) water from the reservoir would add extra weight to existing faults
B) water from the reservoir would add extra weight creating new fractures
C) water from the reservoir might lubricate existing fractures
D) water from the reservoir might add extra pressure on the groundwater
E) All of the above are reasons why building a reservoir would increase earthquakes

85) Which of the following human activities could cause earthquakes?

- A) Underground nuclear explosions D) Excavating large amounts of materials to make buildings
B) Injecting waste deep into the ground E) All of the above are human activities that could cause earthquakes
C) Building reservoirs or dams

86) Which of the following are used to predict an earthquake?

- A) Foreshocks D) Changes in the groundwater levels
B) Changes in ground elevation E) All of the above are used to predict an earthquake.
C) Locations of Seismic Gaps along a fault

87) Where along a fault are you most likely to see a large earthquake?

- A) The area on the fault that has been constantly moving
B) The area on the fault that has been locked
C) The area on the fault where small and frequent earthquakes are common
D) The area on the fault that has just had a very large earthquake
E) The area on the fault where the gap between one side of the fault and the other is the largest

88) During an earthquake will one side of the fault always rise up relative to the other side?

- A) Yes. Earthquakes are always associated with upward movement along the fault
B) Yes. Earthquakes are always associated with subduction
C) No. Faults in earthquakes never move up and down.
D) No. Faults in earthquakes sometimes are preceded by ground uplift, but not always
E) No. Faults that rise up are usually associated with volcanoes and not earthquakes

89) If lived on an active fault and felt a small earthquake, what would that mean?

- A) It's a foreshock. A big earthquake is coming.
B) The fault is releasing energy and won't shake again
C) The fault is the type to only cause small earthquakes and there are no worries for big ones
D) Your fault is becoming more active and more earthquakes are on the way
E) The fault is releasing energy, but it is not enough to know what might happen next

90) If you knew that an earthquake was coming, where is the safest place to be?

- A) In the basement C) In your backyard away from any buildings or power lines E) In your bathtub
B) Under a doorway D) In the garage

91) Which of the following are ways for communities to deal with the earthquake hazard?

- A) retrofit old buildings
B) enact building codes for new construction
C) provide insurance for potential victims
D) educate people on what to do during an earthquake
E) All of the above are ways for communities to deal with the earthquake hazard