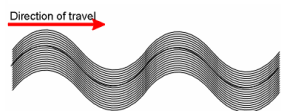


1. An \_\_\_\_\_ is a trembling or shaking of the ground caused by the sudden release of energy stored in the rocks beneath Earth's surface.
2. Tectonic forces within the Earth produce stresses on rocks that eventually exceed their \_\_\_\_\_ limits, resulting in \_\_\_\_\_ failure.
3. Energy is released during earthquakes in the form of \_\_\_\_\_ waves, released from a position along a break between two rock masses called a \_\_\_\_\_.
4. Define the Elastic rebound theory (5pts).
5. The \_\_\_\_\_ is the point of initial breakage and movement along a fault, where seismic waves originate. The \_\_\_\_\_ is a point on Earth's surface directly above the focus.
6. Two types of seismic waves are produced during earthquakes. They are:  
\_\_\_\_\_ waves - travel outward from the focus in all directions through Earth's interior  
\_\_\_\_\_ waves - travel along Earth's surface away from the epicenter.
7. A \_\_\_\_\_ wave is a compressional (longitudinal) body wave in which rock vibrates back and forth parallel to the direction of wave propagation. They have the following characteristics:
  - a. Fast (\_\_\_\_ to \_\_\_\_ km/sec).
  - b. \_\_\_\_\_ wave to arrive at recording station following earthquake.
  - c. Passes through \_\_\_\_\_ and \_\_\_\_\_.
8. An \_\_\_\_\_ wave is a shearing (transverse) body wave in which rock vibrates back and forth \_\_\_\_\_ to the direction of wave propagation. They have the following characteristics:
  - a. Slower (\_\_\_\_ to \_\_\_\_ km/sec).
  - b. \_\_\_\_\_ wave to arrive at recording station following earthquake.
  - c. Passes through \_\_\_\_\_ only.
9. Surface waves are the (fastest/slowest) type of seismic waves produced by earthquakes. There are two kinds of surface waves:
  - a. \_\_\_\_\_ waves travel in a side-to-side motion of the ground surface. They (can/can't) travel through fluids.
  - b. \_\_\_\_\_ waves move in an elliptical path opposite the direction of wave motion, and are extremely destructive to buildings.

10. Examine the image below. Label each type of wave shown.



\_\_\_\_\_



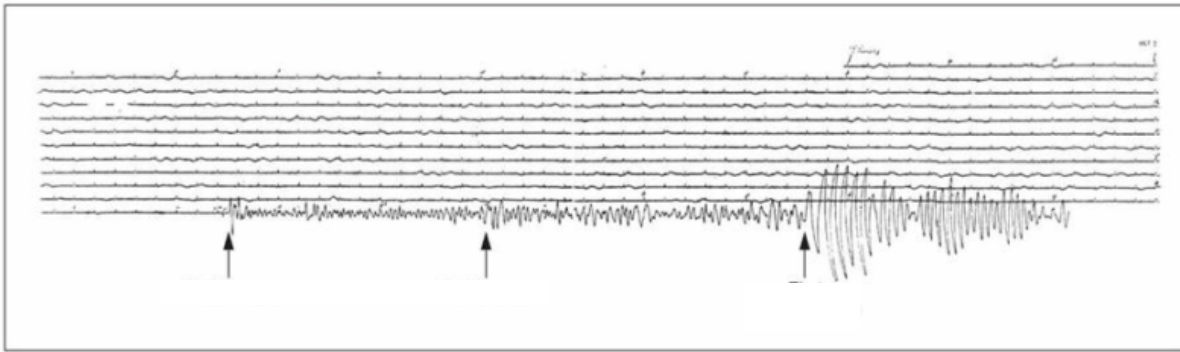
\_\_\_\_\_

11. \_\_\_\_\_ are recording devices used to produce a permanent record of the motion detected by seismometers.

12. The p-wave shown to the right begins as a (push/pull) motion.



13. Examine the image below, then label the waves shown at the arrows (3pts).



14. P- and S-waves leave earthquake focus at the (same time/different times).

15. \_\_\_\_\_ curve is used to determine the distance to the focus, based on time between the first P- and S-wave arrival times.

16. If you missed class, then you will be required to do the following in order to get the 100 points possible for this given assignment:

- Go to the website: <http://www.sciencecourseware.com/virtualearthquake/VQuakeExecute.html>
- Complete the exercise, then print your "Certificate of Completion", or e-mail it to Mr. Brady.

17. The size of earthquakes is measured in two ways - intensity and magnitude. What scales are used to measure these two criteria?

- Intensity - \_\_\_\_\_
- Magnitude - \_\_\_\_\_

18. According to the Richter Scale, how much stronger is a magnitude 7 earthquake than a magnitude 4 earthquake? \_\_\_\_\_ times stronger

19. According to the Modified Mercalli Scale, what happens at a level VI earthquake?

20. According to the Richter Scale, how many earthquakes of magnitude 8 or greater happen in a given year?

21. Complete the following sentence correctly:

Seismic risk is determined based on the assumption that large future earthquakes \_\_\_\_\_.

22. Name five effects that are associated with earthquakes that can cause damage.

- a.
- b.
- c.
- d.
- e.

23. A \_\_\_\_\_ is a very large sea wave that is caused by the sudden upward or downward movement of the sea floor during submarine earthquakes.

24. Most earthquakes occur in narrow geographic belts which mark tectonic plate \_\_\_\_\_.

25. Nearly all intermediate- and deep-focus earthquakes occur in \_\_\_\_\_ zones.

26. Earthquakes occur at each of the three types of plate boundaries: divergent, transform, and convergent. What kind of earthquakes occurs at each of the different types of boundaries?

- a. At divergent boundaries, \_\_\_\_\_ forces produce \_\_\_\_\_-focus quakes on \_\_\_\_\_ faults.
- b. At transform boundaries, \_\_\_\_\_ forces produce \_\_\_\_\_-focus quakes along \_\_\_\_\_ faults.
- c. At convergent boundaries, \_\_\_\_\_ forces produce shallow- to deep-focus quakes along \_\_\_\_\_ faults.

27. Why are most earthquakes generated in the crust and not in the mantle (5pts)?

28. Why are earthquakes so difficult to predict (5pts)?

29. Why do some earthquakes cause significant damage to buildings and loss of life, while other, larger earthquakes have little effect at the Earth's surface (5pts)?

30. Do earthquakes cause tectonic plate motion (5pts)?