

Dynamic Planet Invitationals February 6, 2010

Please write all answers on the answer sheet located in the back of the test. Try not to write on your test. Write your names, your school's name, and your team number on the answer sheet. You will find a color copy of all images on this test on a separate sheet at your table just in case the black and white versions on this test are not clear. Raise your hand if you have a question, and I will get to you as soon as possible. Breathe! Good luck!



Use the image above to answer the following questions.

1. a. What type of plate boundary would you find where the Indian and Eurasian plates meet?

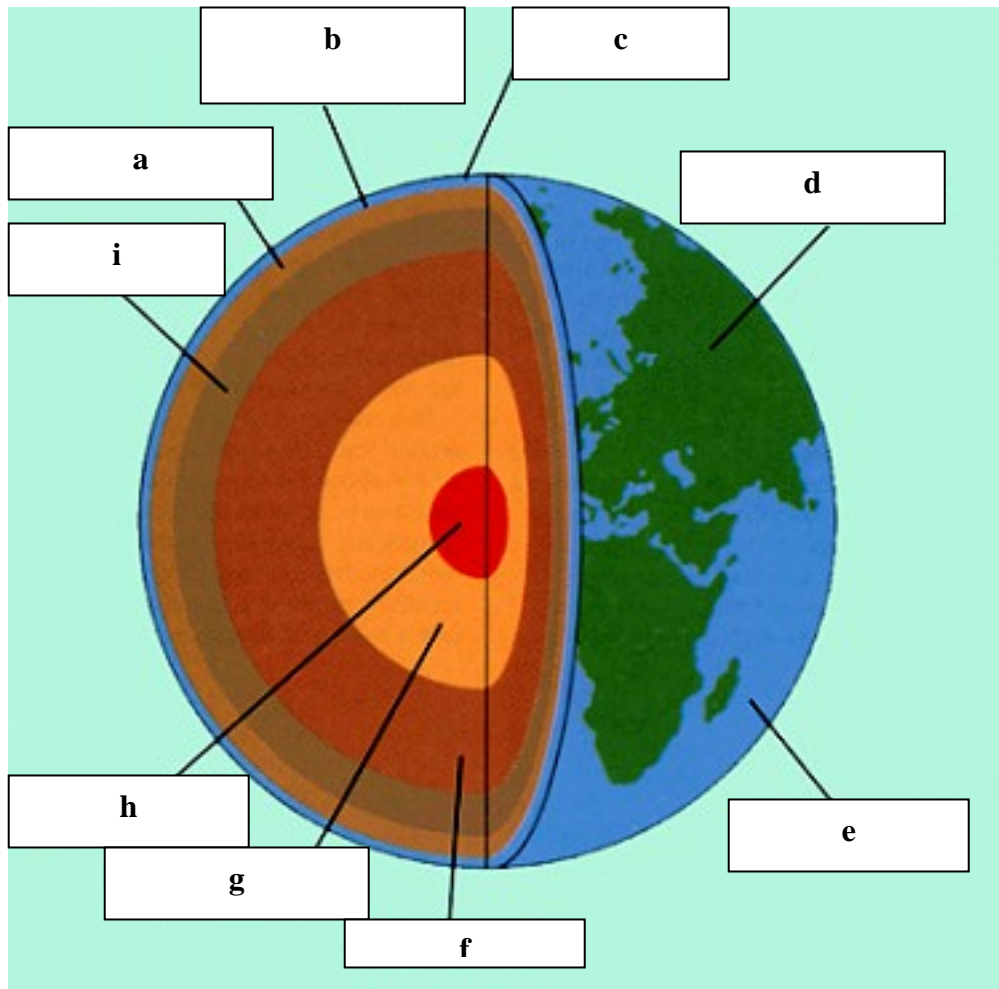
b. What type(s) of lithosphere are these?

c. What geologic feature would you find there?

2. a. What process is occurring at the juncture of the Nazca and South American Plates?

b. What kind of geologic activity (if any) would you find here?

3.



Label the parts of the Earth's interior.

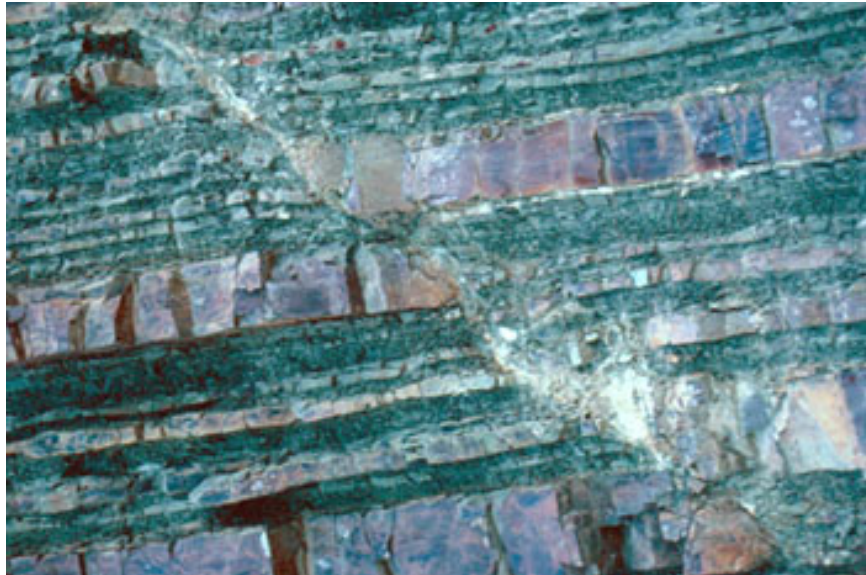
Short Answer:

4. What is the point of origin of an earthquake?
5. Very fluid fragments of molten lava ejected from the vent that then flatten and congeal is called _____.
6. A _____ is a block of rock between 2 blocks of rock that have sunk, called _____.
7. The San Andreas Fault is an example of a _____ fault.
8. The area at the surface directly above the origin of an earthquake is called _____.
9. A _____ is a break between different areas of rock along which movement may occur.
10. A depression called a _____ sometimes forms on top of a volcano.

Identify the type of fault in each diagram.

11.

12.



Multiple Choice

12. What is pyroclastic flow?
- a fast moving mixture of water and volcanic debris
 - a fast moving wave of water
 - a slow moving flow of lava and volcanic gas
 - a very fast moving mixture of hot gas and volcanic debris
13. A _____ is a steep-sided volcano composed of many layers of high-viscosity lava flows and fragmented debris.
- stratovolcano
 - cinder cone
 - shield volcano
 - pillow basalt
14. Molten rock below the Earth's surface is called
- metamorphic
 - lava
 - magma
 - intrusive
15. In order to locate the epicenter of an earthquake, one would need a seismogram from at least
- one station
 - two stations
 - three stations
 - four stations
16. The idea of continental drift was proposed in 1912 by
- Edwin Hubble
 - Alfred Wegener
 - Harry Hess
 - Andrija Mohorovičić
17. _____ is formed when rhyolitic lava is ejected into the air and cools quickly.
- pumice
 - obsidian
 - olivine
 - coral

18. Which seismic waves travel the fastest?

- a. Rayleigh Waves
- b. Love Waves
- c. P waves
- d. S Waves

19. Most stratovolcanoes tend to erupt

- a. rhyolite
- b. andesite
- c. basalt
- d. gabbro

20. Most tsunamis occur in the

- a. Pacific Ocean
- b. Atlantic Ocean
- c. Indian Ocean
- d. Arctic Ocean

Seismic Wave Travel Times

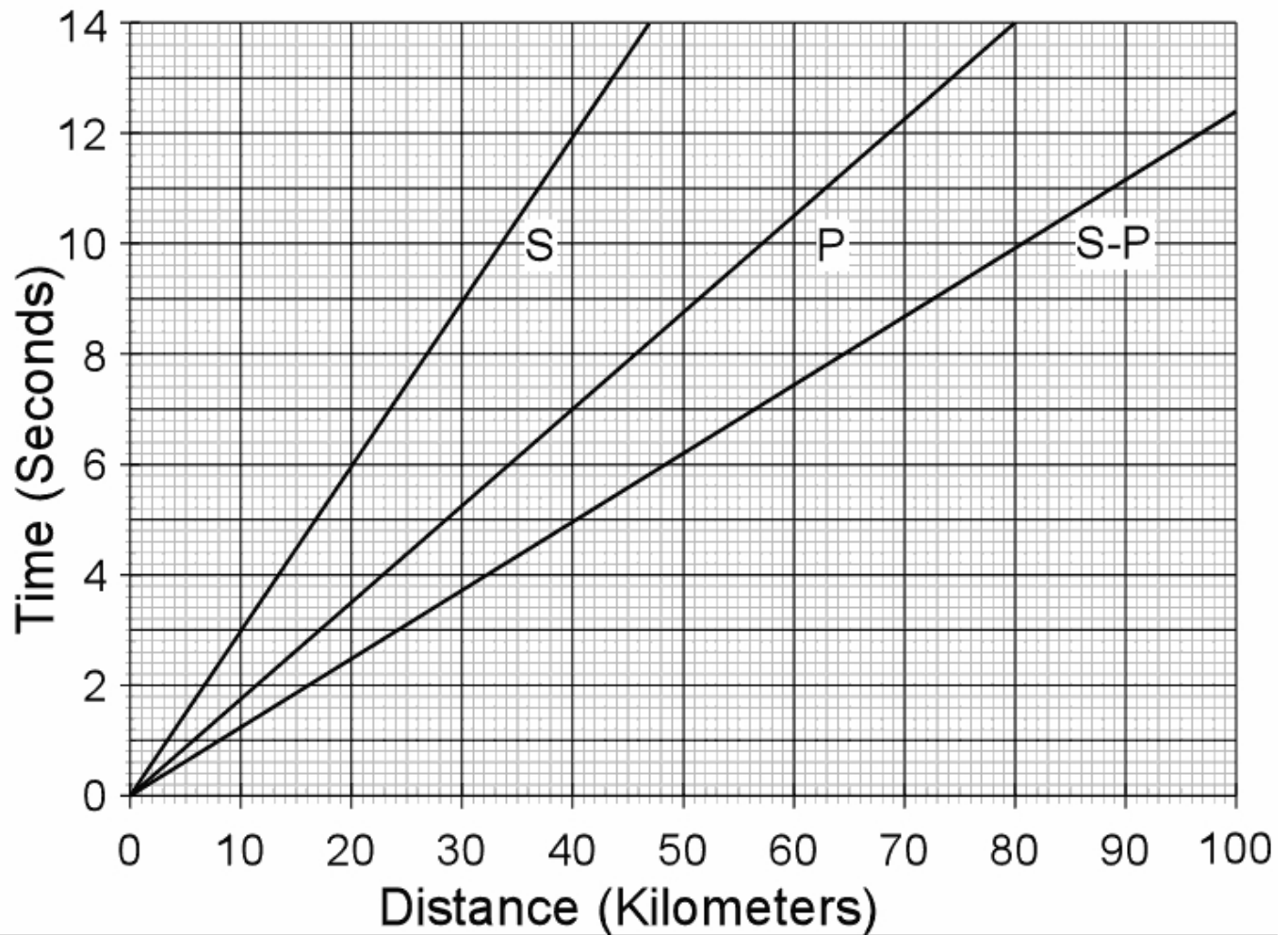


Figure 2

Use the graph above to answer the following questions.

21. How long will it take an S wave to travel 40 km?
22. If a seismic station recorded that it took 4.5 seconds for the first wave to reach them, how far away is the epicenter?
23. How many seconds later would you expect the station to record the next wave?

Identify the type of feature or object in each picture.

←24.



25.

QuickTime™ and a decompressor are needed to see this picture.

←26.



27.



Answer Sheet

Name(s) _____

Team Name _____

Team Number _____

Section 1 Plates

1. a. _____ 2. a. _____
b. _____ b. _____
c. _____

Label the Earth's Interior

3. a. _____ f. _____
b. _____ g. _____
c. _____ h. _____
d. _____ i. _____
e. _____

Short Answer

4. _____ 8. _____
5. _____ 9. _____
6. _____ 10. _____
7. _____

Identify

11. _____ 12. _____

Multiple Choice

12. _____ 13. _____ 14. _____ 15. _____ 16. _____ 17. _____ 18. _____
19. _____ 20. _____

Seismic Graph

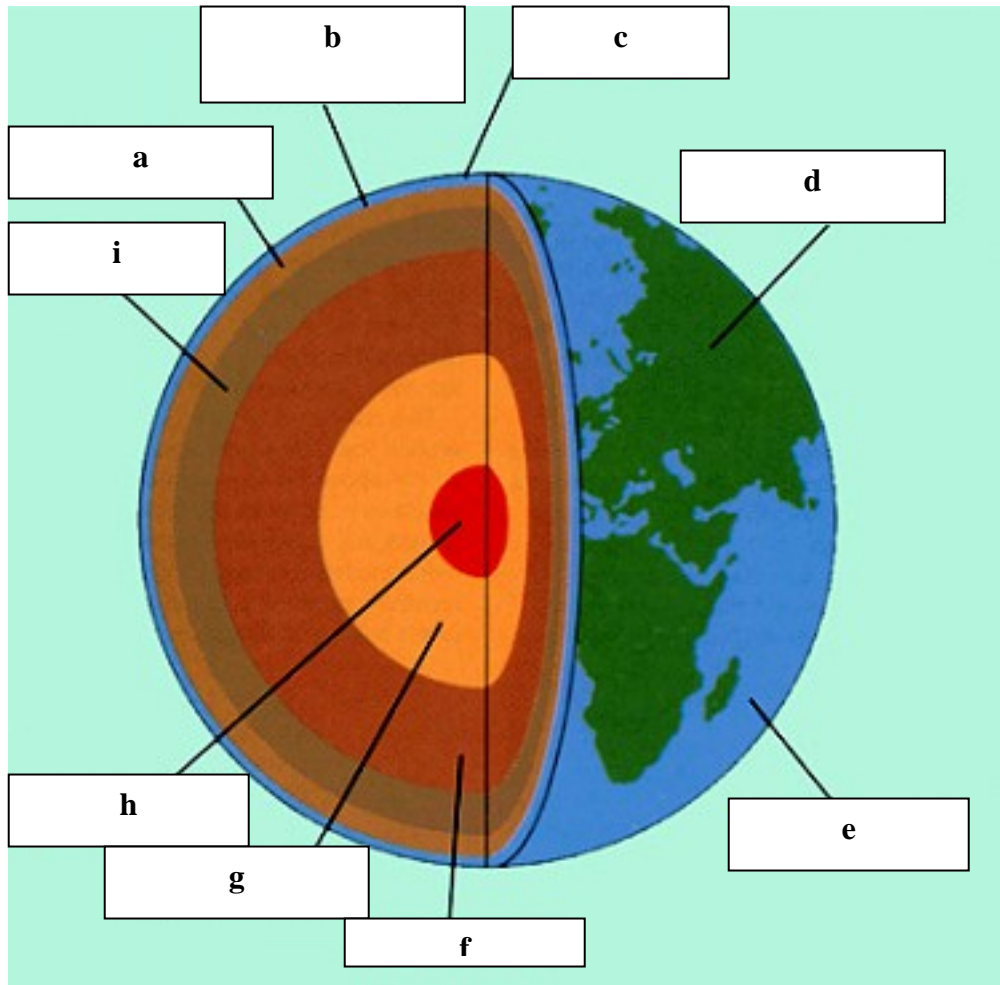
21. _____ 22. _____ 23. _____

Identify

24. _____
25. _____
26. _____
27. _____

Images

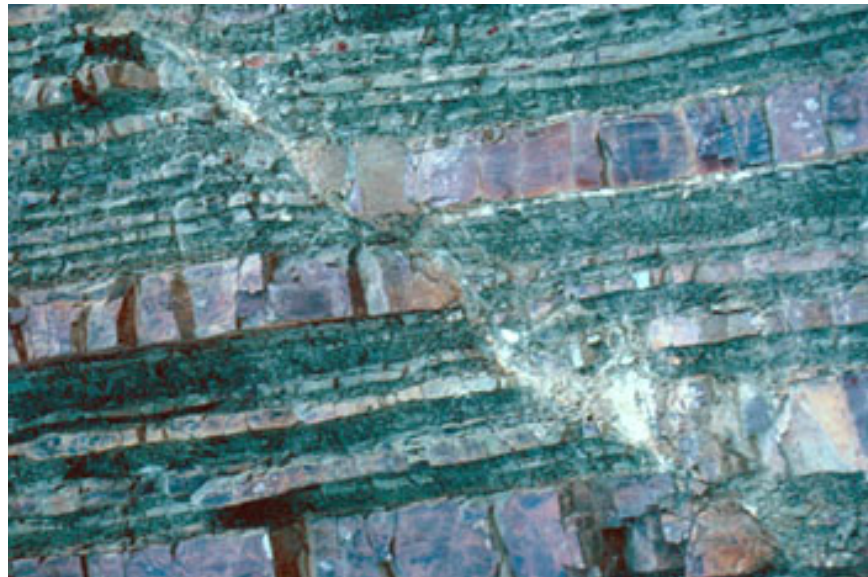
3.



11.



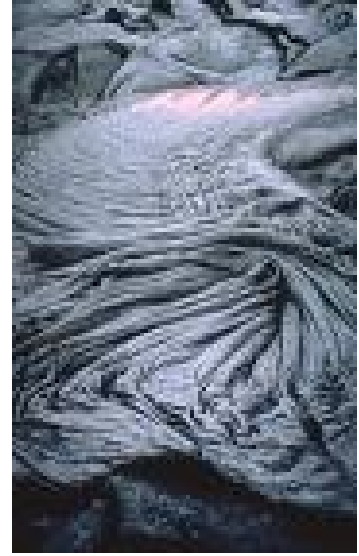
12.



24.

QuickTime™ and a decompressor are needed to see this picture.

25.



26.



27.

