7. A
8. D
9. D
10. A
11. active tendon system
12. flexible pipe
13. cross brace
14. base isolator
15. A
16. C
17. C
18. B
19. B
20. D

Vocabulary and Section Summary

SECTION: WHAT ARE EARTHQUAKES?

1. seismology: the study of earthquakes
2. deformation: the bending, tilting, and breaking of the Earth's crust; the change in the shape of rock in response to stress
3. elastic rebound: the sudden return of elastically deformed rock to its undeformed shape
4. seismic wave: a wave of energy that travels through the Earth, away from an earthquake in all directions
5. P wave: a seismic wave that causes particles of rock to move in a back-and-forth direction
6. S wave: a seismic wave that causes particles of rock to move in a side-to-side direction

SECTION: EARTHQUAKE MEASUREMENT

1. seismograph: an instrument that records vibrations in the ground and determines the location and strength of an earthquake
2. seismogram: a tracing of earthquake motion that is created by a seismograph
3. epicenter: the point on Earth's surface directly above an earthquake's starting point, or focus
4. focus: the point along a fault at which the first motion of an earthquake occurs

SECTION: EARTHQUAKES AND SOCIETY

1. gap hypothesis: a hypothesis that is based on the idea that a major earthquake is more likely to occur along the part of an active fault where no earthquakes have occurred for a certain period of time
2. seismic gap: an area along a fault where relatively few earthquakes have occurred recently but where strong earthquakes have occurred in the past

Section Review

SECTION: WHAT ARE EARTHQUAKES?

1. Deformation
2. P waves
3. B
4. The majority of earthquakes occur near the edges of tectonic plate boundaries.
5. Earthquakes are caused by elastic rebound—the return of elastically deformed rock to its original state. When enough stress is applied to an elastically deformed rock, the rock along a fault slips and releases energy. Some of the energy travels as seismic waves, which cause an earthquake.
6. Sample answer: Convergent plate motion occurs where two plates are pushed together. It creates reverse faults. Divergent plate motion occurs where two plates pull away from each other. It creates normal faults. Transform motion occurs where two plates slip past each other. It creates strike-slip faults.
7. An earthquake zone is an area of Earth's crust where a large number of faults are located.
8. 480 km ÷ 8 km/s = 60 s = 1 min
9. Sample answer: Some earthquakes are stronger than others because a greater amount of energy is released when elastically deformed rock slips.
10. Sample answer: Surface waves are more destructive than P waves and S waves because surface waves produce ground motion in the upper few kilometers of the Earth's crust.

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