Earth Science Practice

Choose one answer per question. Circle A, B, C, or D.

1. What kind of rock forms when molten rock cools and solidifies?
   A. Igneous rock
   B. Sedimentary rock
   C. Metamorphic rock
   D. Loose sediment

2. Which rock usually forms when sand grains are compacted and cemented together?
   A. Slate
   B. Basalt
   C. Sandstone
   D. Granite

3. Existing rock forms new minerals under high heat and pressure while remaining solid. What process does this describe?
   A. Melting
   B. Metamorphism
   C. Deposition
   D. Erosion

4. Of Earth's four main layers, which is the outermost?
   A. Inner core
   B. Mantle
   C. Outer core
   D. Crust

5. What does the term epicenter identify on an earthquake map?
   A. The underground point where the earthquake starts
   B. The point on Earth's surface directly above where the earthquake starts
   C. The seismic station that records the largest waves
   D. The point on the surface farthest from the source

6. Two bodies of molten rock have similar compositions. One cools slowly underground, and the other cools quickly at the surface. Which is expected to have larger mineral crystals?

A. The rock that cooled slowly underground
B. The rock that cooled quickly at the surface
C. Both always have identical crystal sizes because their compositions are similar
D. Neither forms crystals because both started molten

7. An undisturbed stack of sedimentary rock has sandstone at the bottom, limestone in the middle, and shale on top. Which layer was deposited first?

A. All three were deposited at the same time
B. The limestone
C. The shale
D. The sandstone

8. A sedimentary rock consists mainly of rounded, gravel-sized pebbles cemented together. Which rock name fits that description?

A. Sandstone
B. Breccia
C. Conglomerate
D. Shale

9. Which observation describes weathering by itself?

A. A rock splits into pieces that stay where it broke.
B. A stream carries loose pebbles downstream.
C. Wind carries sand away from a dry patch.
D. A stream drops sand on its bed as the water slows.

10. A seismic station can identify both the direct P wave and the direct S wave from one earthquake. Which wave arrives first, and why?

A. The S wave, because the station is at the surface
B. The S wave, because it travels faster
C. Both arrive together because they started together
D. The P wave, because it travels faster

11. A fictional outcrop has sandstone below shale in an undisturbed stack. A sheet of igneous rock called a dike cuts both beds. Erosion truncates the beds and the dike, and limestone lies on the eroded surface. What is the order of the four rock units from oldest to youngest?

A. Dike, sandstone, shale, limestone
B. Sandstone, dike, shale, limestone
C. Sandstone, shale, dike, limestone
D. Sandstone, shale, limestone, dike

12. Two fictional rock beds contain fossils of the same species, buried as each bed formed. The species was widespread and lived for only a short interval. Which conclusion is supported by those fossils?

A. Both beds have the same exact age in years.
B. The beds may represent roughly the same time interval.
C. Both beds must contain the same minerals.
D. The two fossil beds must have been next to each other when they formed.

13. Sand is the most common grain-size class in four fictional samples. A has 18 sand grains out of 24, B has 26 out of 40, C has 22 out of 25, and D has 25 out of 32. Which sample has the largest share of sand?

A. Sample D
B. Sample A
C. Sample B
D. Sample C

14. Four fictional stations record the same earthquake. Each timer starts separately. The P and S times in seconds are A (41, 50), B (17, 30), C (54, 61), and D (28, 39). In a model where a longer S-minus-P gap means greater distance, which station is farthest?

A. Station B
B. Station A
C. Station C
D. Station D

15. A model labels Earth's four main layers A to D from the surface inward. In layer C, compressional P waves can travel but shear S waves cannot propagate as shear waves. Which label fits both the position and the wave behavior?

A. Liquid mantle
B. Solid outer core
C. Liquid outer core
D. Liquid inner core