The deepest that any person can get below the surface of Earth is to the bottom of the deepest mine, a mere 4 kilometers; the deepest hole ever drilled into Earth's crust reached less than 20 kilometers below the surface. Although the details of Earth's gravitational and magnetic fields give some extra information about what is going on inside Earth, for the most part our understanding of Earth's interior is still dependent on the detection of seismic waves, the vibrations caused by earthquakes. These waves travel through Earth and are reflected and refracted by boundaries between different layers of rock.

What the analysis of seismic waves shows is a layered structure built around a solid inner core, which has a radius of about 1,600 kilometers. This inner core is surrounded by a liquid outer core, which has a thickness of just over 1,800 kilometers. The whole core is very dense, probably rich in iron, and has a temperature of nearly 5,000 degrees Celsius. The circulation of this electrically conducting material in the liquid outer core is clearly responsible for the generation of Earth's magnetic field, but nobody has ever been able to work out a thoroughly satisfactory model of how this process works.

The high temperature in the core is in part a result of the fact that the Earth formed as a ball of molten rock. Once a cool crust had formed around the molten ball of rock, it functioned as an insulating blanket. Even so, without some continuing injection of heat, the interior of Earth could not still be as hot as it is today, more than four billion years later. The extra heat comes from radioactive isotopes (originally manufactured by stars), which decay into stable elements and give out energy as they do so. In about ten billion years, even this source of heat will be used up, and Earth will gradually cool down.

1. What does the passage mainly discuss?
   A. The similarities between Earth's inner core and outer core
   B. The structure and temperature of Earth's interior
   C. When seismic waves were first used to study Earth's interior
   D. Why Earth's solid inner core is surrounded by a molten outer core
2. The word "mere" in line 2 is closest in meaning to...
   A. approximate
   B. insignificant
   C. measured
   D. lengthy
3. According to the first paragraph, most knowledge of Earth's interior has been gained by studying...
   A. Earth's gravitational field
   B. Earth's magnetic field
   C. vibrations caused by earthquakes
   D. material taken from holes drilled into Earth's crust
4. According to the second paragraph, which of the following statements regarding Earth's inner core and outer core is true?
   A. Neither the inner core nor the outer core can be studied using seismic waves.
   B. The outer core is more solid than the inner core.
   C. The inner core and the outer core have greatly different temperatures.
   D. Both the inner core and the outer core probably contain iron
5. The word "thoroughly" in line 15 is closest in meaning to...
   A. basically
   B. similarly
   C. potentially
   D. completely

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