

The following passage refers to questions 8 through 14.

Marie Curie was one of the most accomplished scientists in history. Together with her husband, Pierre, she discovered radium, an element widely used for treating cancer, and studied uranium and other radioactive substances. Pierre and Marie's amicable collaboration later helped to unlock the secrets of the atom.

Marie was born in 1867 in Warsaw, Poland, where her father was a professor of physics. At an early age, she displayed a brilliant mind and a blithe personality. Her great exuberance for learning prompted her to continue with her studies after high school. She became disgruntled, however, when she learned that the university in Warsaw was closed to women. Determined to receive a higher education, she defiantly left Poland and in 1891 entered the Sorbonne, a French university, where she earned her master's degree and doctorate in physics.

Marie was fortunate to have studied at the Sorbonne with some of the greatest scientists of her day, one of whom was Pierre Curie. Marie and Pierre were married in 1895 and spent many productive years working together in the physics laboratory. A short time after they discovered radium, Pierre was killed by a horse-drawn wagon in 1906. Marie was stunned by this horrible misfortune and endured heartbreaking anguish. Despondently she recalled their close relationship and the joy that they had shared in scientific research. The fact that she had two young daughters to raise by herself greatly increased her distress.

Curie's feeling of desolation finally began to fade when she was asked to succeed her husband as a physics professor at the Sorbonne. She was the first woman to be given a professorship at the world-famous university. In 1911 she received the Nobel Prize in chemistry for isolating radium. Although Marie Curie eventually suffered a fatal illness from her long exposure to radium, she never became disillusioned about her work. Regardless of the consequences, she had dedicated herself to science and to revealing the mysteries of the physical world.

**8. The Curies' \_\_\_\_\_ collaboration helped to unlock the secrets of the atom.**

- A. friendly
- B. competitive
- C. courteous
- D. industrious
- E. chemistry

**9. Marie had a bright mind and a \_\_\_\_\_ personality.**

- A. strong
- B. lighthearted
- C. humorous
- D. strange
- E. envious

**10. When she learned that she could not attend the university in Warsaw, she felt \_\_\_\_\_.**

- A. hopeless
- B. annoyed
- C. depressed
- D. worried
- E. None of the above

**11. Marie \_\_\_\_\_ by leaving Poland and traveling to France to enter the Sorbonne.**

- A. challenged authority
- B. showed intelligence
- C. behaved
- D. was distressed
- E. Answer not available

12. \_\_\_\_\_ she remembered their joy together.

- A. Dejectedly
- B. Worried
- C. Tearfully
- D. Happily
- E. Irefully

13. Her \_\_\_\_\_ began to fade when she returned to the Sorbonne to succeed her husband.

- A. misfortune
- B. anger
- C. wretchedness
- D. disappointment
- E. ambition

14. Even though she became fatally ill from working with radium, Marie Curie was never \_\_\_\_\_.

- A. troubled
- B. worried
- C. disappointed
- D. sorrowful
- E. disturbed

The following passage refers to questions 15 through 19.

Mount Vesuvius, a volcano located between the ancient Italian cities of Pompeii and Herculaneum, has received much attention because of its frequent and destructive eruptions. The most famous of these eruptions occurred in A.D. 79.

The volcano had been inactive for centuries. There was little warning of the coming eruption, although one account unearthed by archaeologists says that a hard rain and a strong wind had disturbed the celestial calm during the preceding night. Early the next morning, the volcano poured a huge river of molten rock down upon Herculaneum, completely burying the city and filling the harbor with coagulated lava.

Meanwhile, on the other side of the mountain, cinders, stone and ash rained down on Pompeii. Sparks from the burning ash ignited the combustible rooftops quickly. Large portions of the city were destroyed in the conflagration. Fire, however, was not the only cause of destruction. Poisonous sulfuric gases saturated the air. These heavy gases were not buoyant in the atmosphere and therefore sank toward the earth and suffocated people.

Over the years, excavations of Pompeii and Herculaneum have revealed a great deal about the behavior of the volcano. By analyzing data, much as a zoologist dissects an animal specimen, scientists have concluded that the eruption changed large portions of the area's geography. For instance, it turned the Sarno River from its course and raised the level of the beach along the Bay of Naples. Meteorologists studying these events have also concluded that Vesuvius caused a huge tidal wave that affected the world's climate.

In addition to making these investigations, archaeologists have been able to study the skeletons of victims by using distilled water to wash away the volcanic ash. By strengthening the brittle bones with acrylic paint, scientists have been able to examine the skeletons and draw conclusions about the diet and habits of the residents. Finally, the excavations at both Pompeii and Herculaneum have yielded many examples of classical art, such as jewelry made of bronze, which is an alloy of copper and tin. The eruption of Mount Vesuvius and its tragic consequences have provided everyone with a wealth of data about the effects that volcanoes can have on the surrounding area. Today, volcanologists can locate and predict eruptions, saving lives and preventing the destruction of other cities and cultures.

**15. Herculaneum and its harbor were buried under \_\_\_\_\_ lava.**

- A. liquid
- B. solid
- C. flowing
- D. gas
- E. Answer not available

**16. The poisonous gases were not \_\_\_\_\_ in the air.**

- A. able to float
- B. visible
- C. able to evaporate
- D. invisible
- E. able to condense

**17. Scientists analyzed data about Vesuvius in the same way that a zoologist \_\_\_\_\_ a specimen.**

- A. describes in detail
- B. studies by cutting apart
- C. photographs
- D. chart
- E. Answer not available

**18. \_\_\_\_\_ have concluded that the volcanic eruption caused a tidal wave.**

- A. Scientists who study oceans
- B. Scientists who study atmospheric conditions
- C. Scientists who study ash
- D. Scientists who study animal behavior
- E. Answer not available in article

**19. Scientists have used \_\_\_\_\_ water to wash away volcanic ash from the skeletons of victims.**

- A. bottled
- B. volcanic
- C. purified
- D. sea
- E. fountain

## Answers and Explanations

- 8. A:** "Amicable" means friendly. It does not mean competitive (B), i.e. oppositional, ambitious, or aggressive; courteous (C), i.e. polite; industrious (D), i.e. hard-working; or chemistry (E): their collaboration was in physics, but moreover, the passage specifically describes their collaboration as "amicable."
- 9. B:** "Blithe" means light-hearted. It does not mean strong (A), humorous (B) or funny; strange (D), or envious (E).
- 10. B:** "Disgruntled" means annoyed. It does not mean hopeless (A), depressed (C), or worried (D).
- 11. A:** Marie challenged authority by going to study at the Sorbonne, because Warsaw's university did not admit women. The passage indicates this challenge by describing her "defiantly" leaving Poland for France; i.e., she was defying authority. The passage does not indicate she showed intelligence (B), "behaved" (C), or was distressed (D) or upset by her move.
- 12. A:** A synonym for "despondently" is "dejectedly," meaning sadly, with despair or depression. The passage indicates this by describing Curie's emotional state as one of "heartbreaking anguish" over her husband's sudden accidental death. She is not described in this passage as worried (B) by her memories, or recalling them tearfully (C), happily (D), or irefully (E), i.e. angrily.
- 13. C:** The closest synonym for the "feeling of desolation" (despair) described in the passage is wretchedness. Misfortune (A) or ill fate/luck is not as close. Anger (B) is a separate emotion from desolation. Disappointment (D) is also different from desolation, meaning feeling let-down rather than hopeless. Ambition (E) is drive to succeed or accomplish things. It was not Curie's ambition that faded upon returning to the Sorbonne but her depression.
- 14. C:** "Disillusioned" means disappointed. It does not mean troubled (A), i.e. concerned or disturbed; worried (B) or anxious; sorrowful (D) or sad; or disturbed (E).
- 15. B:** "Coagulated" means solidified. Liquid (A) is an opposite of solid. Flowing (C) assumes a liquid, not solid, state. Gas (D) is another opposite of solid. (Three states of matter, like volcanic material, are liquid, solid, and gaseous.)
- 16. A:** "Buoyant" means able to float. The passage indicates this by indicating that the gases therefore, sank toward earth and suffocated people. Buoyant does not mean visible (B) or possible to see. Able to float/buoyant does not mean able to evaporate (C). Evaporation means turning to vapor, which only liquids can do. Gases are already vapors. Buoyant does not mean invisible (D) or unseen. Able to float does not mean able to condense (E), i.e. turn from vapor to liquid.
- 17. B:** "Dissect" means to cut apart for study. It does not mean to describe in detail (A), to photograph (C), or to chart (D) a specimen.
- 18. B:** Meteorologists are scientists who study atmospheric conditions, particularly weather. Scientists who study oceans (A) are oceanographers, i.e. marine scientists. Scientists who study ash (C) do not exist as members of a separate discipline. Climate scientists and many others concerned with its effects study volcanic ash. Scientists who study animal behavior (D) are ethologists or animal behaviorists and do not study ash.
- 19. C:** Distilled water is purified water. Distilled water is not equivalent to bottled (A), volcanic (B), sea (D), or fountain (E) water.