

**SECTION 3****Time – 35 minutes****44 Questions****Turn to Section 3 of your answer sheet to answer the questions in this section.****Directions:** For these questions, determine the solution to each question presented and choose the best answer choices of those provided. Be sure to fill in the respective circle on your answer sheet.**Questions 1-11 are based on the following passage.****Disputes in Ancient Greek Philosophy**

The philosophy of ancient Greece has had an enormous impact on Western thought for millennia. Ancient Greek philosophers held a great diversity of opinions, founding many schools of thought that have shaped the development of culture in the West and beyond.

**1** The thinker Epicurus developed this system of philosophy in the 4th century BCE. Epicurus and his followers challenged **2** humdrum beliefs of the time by claiming that all events happened by chance without any intervention from the gods. This stance was highly controversial in Greece’s polytheistic society. Epicurus also stated that people could achieve happiness by seeking pleasure and avoiding pain, which led many to perceive him as a hedonist. **3** As a result, the word “epicurean” is used to this day to describe someone who enjoys luxury and self-indulgence, especially in the realm of fine dining.

- Which choice most effectively conveys the main topic of this paragraph?
  - One of the foremost of these philosophical movements was Epicureanism.
  - Of course, philosophers in other parts of the world also developed many great insights.
  - These schools often argued with one another, each claiming to have the best doctrine.
  - Many of these philosophers held positions that Greek society considered unpopular and controversial.
- NO CHANGE
  - routine
  - mundane
  - conventional
- NO CHANGE
  - In addition,
  - Notwithstanding that fact,
  - Furthermore,

**GO ON TO THE NEXT PAGE** 



The most famous rivals of the Epicureans were the Stoics. The Stoic school of thought was founded in the 4th century <sup>4</sup> BCE, and its most well-known follower, the Roman emperor Marcus Aurelius, lived and wrote much later, in the 2nd century CE. The Stoics, unlike the Epicureans, believed that a <sup>5</sup> divine will they called the logos influenced all events. Thus, the Stoics thought that people could not control their fates, and so should cultivate self-control and composure, even in the face of hardship. Because of these teachings, the word “stoic” has now come to mean “calm,” “steady,” and even “emotionless.”

4. (A) NO CHANGE  
(B) BCE, so its  
(C) BCE, however its  
(D) BCE, but its
5. (A) NO CHANGE  
(B) divine will, they called  
(C) divine will: they called  
(D) divine will—they called

GO ON TO THE NEXT PAGE 



[1] The Cynics, another group of philosophers with roots in 4th century BCE Greece, held views similar to <sup>6</sup> the Stoics, but more extreme. [2] For instance, the best-known Cynic, Diogenes of Sinope, lived in a large jar in the marketplace of Athens, ate only onions, and mocked <sup>7</sup> famous people that everyone looked up to. [3] The Cynics claimed that desires for wealth and power clouded the mind. [4] Only if one gave up these pursuits, they said, could <sup>8</sup> you live a virtuous life. [5] The Cynics thus chose to live without possessions or status and rejected social norms. [6] The Cynics' distrust of societal institutions and authority has today led to the word "cynical" being used to describe people who doubt the motivations of others and criticize society. <sup>9</sup>

6. (A) NO CHANGE  
(B) those Stoics  
(C) Stoicism  
(D) those of the Stoics
7. Which of the following choices is most consistent with the style of the passage as a whole?  
(A) NO CHANGE  
(B) famous people that were highly respected  
(C) respected public figures  
(D) respectful people of fame
8. (A) NO CHANGE  
(B) one live  
(C) they live  
(D) he or she live
9. For the sake of the cohesion of this paragraph, sentence 2 should be placed  
(A) where it is now.  
(B) after sentence 3.  
(C) before sentence 5.  
(D) after sentence 5.

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These Greek philosophies have had a profound influence on culture worldwide. Alexander the Great's conquest carried these ideas across the Middle East and Asia, bringing them into contact with many other cultures. In the Middle East, <sup>10</sup> aesthetic ideals from Cynicism influenced early Christians, leading some to give up their possessions to live in poverty in the desert. <sup>11</sup> Thus, though these Greek schools of thought were suppressed by later Roman authorities, their influence has continued to this day.

10. (A) NO CHANGE  
(B) eclectic  
(C) ascetic  
(D) analytic
11. Which of the following, inserted here, would be the most relevant addition to the paragraph?
- (A) In the Judeo-Christian tradition, the desert has long been associated with religious experience.  
(B) In India and Central Asia, Stoicism and Buddhism may have exchanged ideas about the importance of self-control and tranquility.  
(C) Indeed, Christianity quickly spread beyond the Middle East, arriving in Greece and what is now Turkey in the 1<sup>st</sup> century CE.  
(D) Still, most people today would probably not say they are cynical.

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Questions 12-22 are based on the following passage.

### Genetically Modified Crops and the Future of Agriculture

For millennia, humans have altered the genes of the plants we eat. For as long as agriculture has existed, we have used selective breeding to raise crops with the traits we want, crossing wild plants with each other to create the domesticated varieties we eat today. In the past several decades, however, the use of genetic engineering techniques to create genetically modified (GM) crops has promised <sup>12</sup> essentially new benefits to agriculture while also raising concerns and spurring controversy.

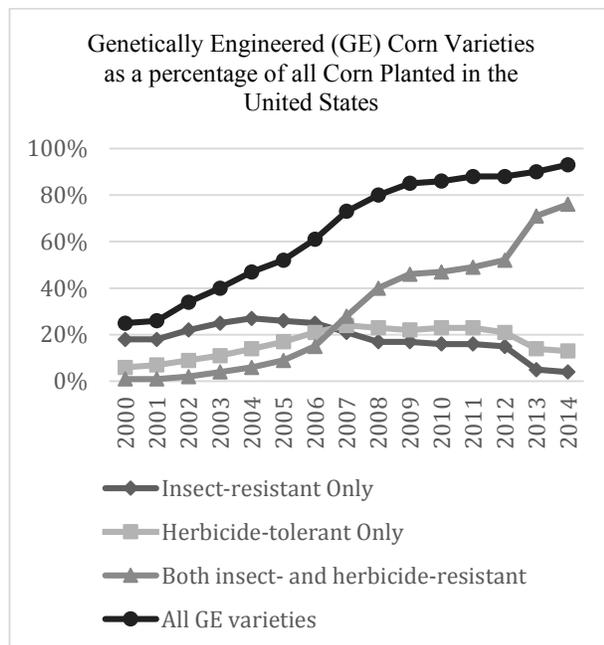
Since the 1980s, scientists have developed and applied several new methods to create GM crops. Typically, scientists modify plants by creating a ring of DNA called a plasmid, which holds the desired <sup>13</sup> genes, then they insert this plasmid into plant cells. In some cases, scientists use bacteria that naturally infect plants with plasmids to deliver <sup>14</sup> there own lab-created plasmids. Alternatively, scientists might use a “gene gun,” a device that shoots microscopic gold particles coated with genetic material directly into target cells. These methods are able to reliably create plants that contain genes of scientists’ choice, turning conventional crops into <sup>15</sup> a genetically modified organism.

12. (A) NO CHANGE  
(B) radically  
(C) progressively  
(D) unconventionally
13. (A) NO CHANGE  
(B) genes. Whereupon, they insert  
(C) genes, which are then to be inserted  
(D) genes, and inserting
14. (A) NO CHANGE  
(B) they’re  
(C) their  
(D) they
15. (A) NO CHANGE  
(B) genetic modifications  
(C) genetically modified organisms  
(D) a genetic organism

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16 One of the foremost applications of this technology is the creation of plants that are resistant to 17 certain pests, diseases, and herbicides. Because such plants save farmers money by allowing them to use less pesticide, these GM crops have recently become very popular in the United States. The US Department of Agriculture estimates that 18 93% of corn planted in 2014 was both insect- and herbicide-resistant, up from 25% in 2000. Crops can also be genetically modified to enhance their nutritional value, which is especially beneficial for people in the developing world. 19 Some scientists are also experimenting with producing GM crops with above-average yields in order to meet the needs of Earth's rapidly growing population.



16. Which choice most effectively conveys the main topic of this paragraph?
- (A) There are a number of advantages to creating and planting GM crops.  
 (B) Farmers all over the world have enthusiastically embraced the use of GM crops.  
 (C) Most governments around the world have imposed regulations and controls on the use of this technology within their borders.  
 (D) As a result, scientists have much more control over the traits of GM crops than they would over conventionally bred varieties.
17. (A) NO CHANGE  
 (B) certain pests, and diseases, and herbicides  
 (C) certain pests; diseases; and herbicides  
 (D) certain: pests, diseases, and herbicides
18. Which of the following choices completes the sentence with accurate information from the graphic?
- (A) NO CHANGE  
 (B) 76% of corn planted in 2014 was both insect- and herbicide-resistant, up from 1% in 2000  
 (C) 13% of corn planted in 2014 was both insect- and herbicide-resistant, up from 6% in 2000  
 (D) 18% of corn planted in 2014 was both insect- and herbicide-resistant, up from 4% in 2000
19. Which of the following, inserted here, would be the most relevant addition to the paragraph?
- (A) Very few people in the developed world suffer from diseases of nutritional deficiency, however.  
 (B) New varieties of corn and rice have been developed to resist drought and heat, which will make them useful in dry countries near the Equator in Africa.  
 (C) "Golden rice" has been engineered so that its grains contain vitamin A, a necessary nutrient that many people in Africa and South Asia lack in their diets.  
 (D) Many farmers in the developing world are subsistence farmers, who grow only enough food for themselves and their families.



[1] Despite these potential benefits, GM crops have been criticized and viewed with suspicion by many. [2] Even though there is a clear scientific consensus that food derived from GM crops is safe for human consumption, much of the general public fears that <sup>20</sup> they might pose unknown health risks. [3] Some conservation groups are also concerned about the effects that GM crops could have on the environment. [4] For instance, GM crops could outcompete wild plants, give rise to toxin-resistant pests, or <sup>21</sup> disrupting an ecosystem's food chain by damaging insect populations. [5] Clearly, the use of GM crops must be carefully studied and regulated to ensure that the benefits are not outweighed by these risks. <sup>22</sup>

20. (A) NO CHANGE  
(B) it  
(C) one  
(D) he or she
21. (A) NO CHANGE  
(B) disruptive to  
(C) disruptor of  
(D) disrupt
22. For the sake of the cohesion of this paragraph, sentence 4 should be placed
- (A) where it is now.  
(B) after sentence 1.  
(C) before sentence 3.  
(D) after sentence 5.

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Questions 23-33 are based on the following passage.

### Science in the Medieval Islamic World

The history of science as it is taught to most Western students <sup>23</sup> are tragically incomplete. In many schools, teachers promote the myth that little scientific progress occurred between the fall of the Roman Empire and the Renaissance in Europe. It is true that medieval European scholars made few discoveries in the <sup>24</sup> natural sciences. It must be noted that scholars in the Islamic world developed and revolutionized many fields during the Middle Ages. Their discoveries laid the groundwork for future breakthroughs and made Europe's later Scientific Revolution possible.

In mathematics, Muslim thinkers produced many insights. The Persian mathematician <sup>25</sup> al-Khwarizmi who worked in the 9th century CE developed new methods for solving linear and quadratic equations. His work was so influential that his name gave rise to the word algorithm, a term used in modern mathematics and computer science to refer to a step-by-step method of <sup>26</sup> calculation, and the term algebra, from the Arabic al-jabr, also comes from al-Khwarizmi's work. He also popularized the Hindu-Arabic numerals that have become the most common way of writing numbers around the world today.

23. (A) NO CHANGE  
(B) being  
(C) is  
(D) am
24. (A) NO CHANGE  
(B) natural sciences, yet it must be noted  
(C) natural sciences, even if it's noted  
(D) natural sciences, while noting
25. (A) NO CHANGE  
(B) al-Khwarizmi, who worked in the 9<sup>th</sup> century CE developed  
(C) al-Khwarizmi who worked in the 9<sup>th</sup> century CE, developed  
(D) al-Khwarizmi, who worked in the 9<sup>th</sup> century CE, developed
26. (A) NO CHANGE  
(B) calculation. The term  
(C) calculation, not to mention the term  
(D) calculation, the term

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[1] Muslim scientists also made important advances in the theory and practice of medicine. [2] For instance, the Persian doctor al-Razi revolutionized how doctors diagnosed disease. [3] In the 9th century CE, he wrote the first accurate descriptions of smallpox and measles. [4] He also challenged mistaken ancient ideas about the causes of disease. [5] A vaccine for smallpox wasn't developed until several centuries later, however. [6] Perhaps most impressively, al-Razi conducted one of history's earliest clinical trials to study <sup>27</sup> how effective the practice of bloodletting was as a cure for disease. <sup>28</sup>

27. (A) NO CHANGE  
(B) the effectiveness of using bloodletting  
(C) the effectiveness of bloodletting  
(D) blood effects
28. Which of the following changes would most improve the focus of the passage?
- (A) Move sentence 3 so that it follows sentence 4.  
(B) Move sentence 5 so that it follows sentence 3.  
(C) Delete sentence 5.  
(D) Delete sentence 6.

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**29** Throughout the medieval era, the dominant view among astronomers was the geocentric Ptolemaic model. In this view, Earth was the center of the solar system, and the planets, Sun, and stars orbited around it. Astronomers working at the Maragha observatory in Persia, noting inconsistencies between **30** this models predictions and actual observations, developed new equations in the 13th century CE to resolve the conflict. They only updated the Ptolemaic theory, and did not discover that the solar system is actually heliocentric, with the Earth and other planets orbiting the Sun. However, their mathematical innovations inspired Nicolaus Copernicus, several centuries later, to propose a heliocentric model that would revolutionize astronomy. **31**

- 29.** Which choice most effectively conveys the main topic of the paragraph?
- (A) On occasion, medieval Muslim scientists, like their later European counterparts, were opposed in their work by religious authorities.
  - (B) Muslim scientists were not afraid to challenge widely accepted scientific ideas in the areas of mathematics, medicine, or astronomy.
  - (C) The achievements of Muslim scientists were remarkable in light of their limited access to advanced equipment.
  - (D) Furthermore, Muslim astronomers made accurate observations and predictions which would fuel later discovery.
- 30.** (A) NO CHANGE  
(B) this model's  
(C) this models'  
(D) the model
- 31.** Which of the following sentences, inserted here, most effectively supports the claim made in the previous sentence?
- (A) It is not yet known how astronomy texts from the Muslim world found their way into Copernicus's hands.
  - (B) Copernicus faced many obstacles from Christian religious authorities after he proposed his heliocentric theory.
  - (C) Copernicus's equations describing planetary motion are clearly based on the work of al-Tusi, a Maragha astronomer.
  - (D) Copernicus was almost certainly not able to read Persian or Arabic writings himself.



In all, thinkers in the Islamic world made enormous contributions to the development of science. Had they not preserved ancient knowledge and <sup>32</sup> elaborated on it with their own findings, scientific and technological development might be centuries behind where it is today. <sup>33</sup> Even so, the accomplishments of medieval Muslim scientists should be better known around the world; more effort should be made to inform students about these pioneers of science.

32. (A) NO CHANGE  
(B) elaborated with  
(C) elaborated for  
(D) elaborated to
33. (A) NO CHANGE  
(B) For most people,  
(C) Afterward,  
(D) For this reason,

GO ON TO THE NEXT PAGE 



Questions 34-44 are based on the following passage.

### The Growing Roles of Dietitians and Nutritionists

Dietitians are experts in nutrition who help people plan healthy diets. Using their wide range of knowledge and skills, these professionals ensure that their clients and patients eat nutritious foods and <sup>34</sup> living lifestyles that will help them be fit and healthy.

<sup>35</sup> Clinical dietitians might, for example, work with patients with medical conditions that involve dietary restrictions, such as <sup>36</sup> the disorder known as celiac disease. These patients <sup>37</sup> need instruction in how best to eat a nutritious and complete diet while avoiding foods that could make them sick. Other clinical dietitians might specialize in working with elderly patients, teaching them to eat foods that build strong bones and promote all-around good health.

34. (A) NO CHANGE  
(B) live  
(C) to live  
(D) lived
35. Which choice most effectively conveys the main topic of this paragraph?  
(A) Dietitians work to improve the diets of their clients in many different contexts.  
(B) Some dietitians, known as clinical dietitians, work primarily in hospitals and other health care facilities to improve the health of patients.  
(C) Although they are not doctors themselves, dietitians sometimes collaborate with nurses and doctors to assist in providing medical care.  
(D) Dietitians are concerned first and foremost with using their expertise to improve the health of the clients they work with.
36. (A) NO CHANGE  
(B) the disorder of celiac disease  
(C) celiac disease  
(D) celiac
37. (A) NO CHANGE  
(B) will need  
(C) have needed  
(D) would need

GO ON TO THE NEXT PAGE 



Other dietitians work mainly outside of health care settings. Community dietitians work to encourage public health outside of health care settings. They may educate schoolchildren on good nutrition, or teach classes for adults living in **38** communities, with poor access to healthy groceries and fresh food. Sports dietitians collaborate with clients to help them eat right to achieve their fitness and athletic goals. Research dietitians are employed by universities to study the effects of nutrients and diets on the body. Teaching classes on dietetics to university students, **39** new dietitians are also trained by them.

Students must gain substantial skills and education in order to become dietitians. The profession requires a bachelor's degree in a related field, such as biology, anatomy, or nutrition. **40** Regardless, many dietitians go on to earn master's degrees in a specific subfield. This education helps them **41** learn a lot of stuff about biology and chemistry so that they can understand the human body and the effects that various nutrients can have on overall health. Dietitians must also **42** compliment this knowledge with good communication skills, since many interact one-on-one with patients or even speak publicly to large groups.

- 38.** (A) NO CHANGE  
(B) communities; with poor access  
(C) communities with poor access  
(D) communities. With poor access
- 39.** (A) NO CHANGE  
(B) they also train new dietitians  
(C) training for new dietitians is also provided by them  
(D) their new dietitians are also trained
- 40.** (A) NO CHANGE  
(B) In addition,  
(C) For example,  
(D) Certainly,
- 41.** Which of the following choices is most consistent with the style of the passage as a whole?  
(A) NO CHANGE  
(B) get really knowledgeable about  
(C) develop a strong knowledge of  
(D) read up on
- 42.** (A) NO CHANGE  
(B) complement  
(C) condescend  
(D) complicate

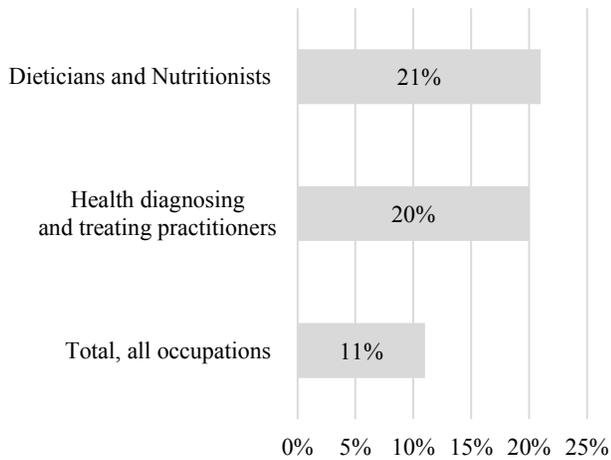
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[1] There will most likely be a great deal of demand for dietitians in the coming years. [2] As the “baby boomer” generation of the United States ages, dietitians will play an important role in ensuring the health of the growing number of elderly Americans. [3] In addition, as the US works to address its obesity epidemic, dietitians will be vital to treating and preventing obesity by helping Americans develop healthier diets. [4] By promoting good nutrition, dietitians can help their patients avoid some of the health problems associated with aging. [5] For these and other reasons, The US Bureau of Labor Statistics predicts <sup>43</sup> a 20% increase in the number of dietitians and nutritionists by 2022. <sup>44</sup>

43. (A) NO CHANGE  
 (B) an 11% increase in the number of dietitians and nutritionists  
 (C) that 21% of all workers will be dietitians or nutritionists  
 (D) a 21% increase in the number of dietitians and nutritionists
44. For the sake of the cohesion of this paragraph, sentence 4 should be placed  
 (A) where it is now.  
 (B) before sentence 2.  
 (C) after sentence 2.  
 (D) after sentence 5.

Dietitians and Nutritionists  
 Percent change in employment, projected 2012-22



**STOP**

If you complete the problem set before time elapses, you may review your responses for this section.

Do not view or begin working on any other sections.

**SECTION 3: WRITING**

- |       |       |       |       |
|-------|-------|-------|-------|
| 1. A  | 12. B | 23. C | 34. B |
| 2. D  | 13. D | 24. B | 35. B |
| 3. A  | 14. C | 25. D | 36. C |
| 4. D  | 15. C | 26. B | 37. A |
| 5. A  | 16. A | 27. C | 38. C |
| 6. D  | 17. A | 28. C | 39. B |
| 7. C  | 18. B | 29. D | 40. B |
| 8. B  | 19. C | 30. B | 41. C |
| 9. D  | 20. B | 31. C | 42. B |
| 10. C | 21. D | 32. A | 43. D |
| 11. B | 22. A | 33. D | 44. C |

**SECTION 4: MATH (CALCULATOR)**

- |      |       |       |                   |
|------|-------|-------|-------------------|
| 1. B | 10. C | 20. C | 30. D             |
| 2. A | 11. A | 21. A | 31. 15            |
| 3. B | 12. A | 22. C | 32. $\frac{5}{4}$ |
| 4. B | 13. C | 23. D | 33. 3             |
| 5. D | 14. A | 24. A | 34. 0             |
| 6. C | 15. B | 25. C | 35. 6.5           |
| 7. C | 16. B | 26. B | 36. 12            |
| 8. C | 17. B | 27. B | 37. 50            |
| 9. D | 18. C | 28. C | 38. 1             |
|      | 19. A | 29. A |                   |

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