Reading

Read the passage and answer the questions

The Shock of the Truth

A Throughout history, there have been instances in which people have been unwilling to accept new theories, despite startling evidence. This was certainly the case when Copernicus published his theory - that the earth was not the centre of the universe.

B Until the early 16th century, western thinkers believed the theory put forward by Ptolemy, an Egyptian living in Alexandria in about 150 A.D. His theory, which was formulated by gathering and organizing the thoughts of the earlier thinkers, proposed that the universe was a closed space bounded by a spherical envelope beyond which there was nothing. The earth, according to Ptolemy, was a fixed and immobile mass, located at the centre of the universe. The sun and the stars, revolved around it.

C The theory appealed to human nature. Someone making casual observations as they looked into the sky might come to a similar conclusion. It also fed the human ego. Humans could believe that they were at the centre of God's universe, and the sun and stars were created for their benefit.

D Ptolemy's theory, was of course, incorrect, but at the time nobody contested it. European astronomers were more inclined to save face. Instead of proposing new ideas, they attempted to patch up and refine Ptolemy's flawed model. Students were taught using a book called The Sphere which had been written two hundred years previously. In short, astronomy failed to advance.

E In 1530, however, Mikolaj Kopernik, more commonly known as Copernicus, made an assertion which shook the world. He proposed that the earth turned on its axis once per day, and travelled around the sun once per year. Even when he made his discovery, he was reluctant to make it public, knowing how much his shocking revelations would disturb the church. However, George Rheticus, a German mathematics professor who had become Copernicus's student, convinced Copernicus to publish his ideas, even though Copernicus, a perfectionist, was never satisfied that his observations were complete.

F Copernicus's ideas went against all the political and religious beliefs of the time. Humans, it was believed, were made in God's image, and were superior to all creatures. The natural world had been created for humans to exploit. Copernicus's theories contradicted the ideas of all the powerful churchmen of the time. Even the famous playwright William Shakespeare feared the new theory, pronouncing that it would destroy social order and bring chaos to the world. However, Copernicus never had to suffer at the hands of those who disagreed with his theories. He died just after the work was published in 1543.

G However, the scientists who followed in Copernicus's footsteps bore the brunt of the church's anger. Two other Italian scientists of the time, Galileo and Bruno, agreed

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wholeheartedly with the Copernican theory. Bruno even dared to say that space was endless and contained many other suns, each with its own planets. For this, Bruno was sentenced to death by burning in 1600. Galileo, famous for his construction of the telescope, was forced to deny his belief in the Copernican theories. He escaped capital punishment, but was imprisoned for the rest of his life.

H In time however, Copernicus's work became more accepted. Subsequent scientists and mathematicians such as Brahe, Kepler and Newton took Copernicus's work as a starting point and used it to glean further truths about the laws of celestial mechanics.

I The most important aspect of Copernicus' work is that it forever changed the place of man in the cosmos. With Copernicus' work, man could no longer take that premier position which the theologians had immodestly assigned him. This was the first, but certainly not the last time in which man would have to accept his position as a mere part of the universe, not at the centre of it.

1. **The text has nine paragraphs, A-I. Which paragraph contains the following information?**

- The public's reaction to the new theory
- An ancient belief about the position of the earth
- Copernicus's legacy to the future of science
- How academics built on Copernican ideas
- An idea which is attractive to humans
- Out-dated teaching and defective research
- Scientists suffer for their beliefs

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