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Short Answer Question 4

0–3 points

Score 3
Response accomplishes all three tasks set by the question.

Score 2
Response accomplishes two of the tasks set by the question.

Score 1
Response accomplishes one of the tasks set by the question.

Score 0
Response accomplishes none of the tasks set by the question.

Score NR
Is completely blank

Scoring Guide

a) One point for analyzing one way in which the Kepler quote reflects traditional views of the cosmos.

b) One point for analyzing one way in which the Kepler quote challenges traditional views of the cosmos.

c) One point for explaining how one example of a scientific discovery led to challenges to traditional views of the cosmos.

Scoring Notes

For parts (a) and (b) it is essential that the response engages the passage.

Acceptable responses for part (a) (not an exhaustive list):

• Points out that God created the universe.
• Notes that the earth is at the center of the universe.
• Mentions that the creation of the universe is part of a divine plan, following ideas expressed in the Bible (Old Testament).
• Mentioning that part of the passage is in tune with Christianity more generally will not suffice here. The response must address views of the cosmos.

Acceptable responses for part (b) (not an exhaustive list):

• Mentions the existence of moons orbiting around Jupiter (which calls into question the geocentric model, since everything in the cosmos does not revolve around the earth)
• Explains that the earth is no longer at the center of the universe and that there is more to the universe than man’s creation
• Argues that the cosmos is more complicated and complex than traditionally believed (reference again to Jupiter’s moons, sun spots, etc.)
Short Answer Question 4 (continued)

- Raises the possibility of intelligent beings on other “Globes,” which contradicts the notion that humans on earth are the only form of intelligent life in the universe.
- Again, the responses to this question must explain how the passage challenges traditional views of the cosmos. It is thus about science, and not about epistemology (ways of knowing, ways of thinking).

Acceptable responses for part (c) (not an exhaustive list):
This question asks for explanations of scientific discovery and its consequences for perspectives on nature. This is also not a question about ways of knowing. So, simply referring to Bacon, Descartes, or similar individuals, arguing that they encouraged people to question church teaching, to inquire directly into how nature worked rather than taking statements on faith, will not suffice to earn a point for part (c).

- That said, we have accepted the “discovery” of the heliocentric model (by Copernicus) and its popularization (by Galileo, and others) as a fundamental challenge to traditional views about nature that are embedded in the Ptolemaic geocentric model.
- Reference to Kepler’s and Galileo’s work on celestial orbits (they are not perfect circles – ellipses in fact, they are also not fully regular – they “wobble”), which contradict traditional views of planets traveling on perfectly circular orbits
- Referencing Newton’s work on gravity and laws of motion, which challenged traditional views of nature in a number of ways, including further discrediting the notion of geocentrism and demystifying nature by demonstrating that it is knowable through rational inquiry.
- Explains how Harvey’s discovery of the circulation of blood challenges prevailing understanding of the human body’s functioning
- Notes that the “discovery” of the telescope permits humans to directly observe and thus question the organization and functioning of the universe (it is thus not simply a matter of following biblical or church teaching on the heavens)
Write your answer to SECTION I: PART B, QUESTION 4 on this page only.

a) The provided passage reflects traditional views of the cosmos in that it accepts that God created the universe and everything inside of it. Whereas later movements preferred the explanation that the universe came into being by other means such as evolution or the Big Bang, this passage accepts God's undeniable handiwork in the creation and existence of the cosmos as the most probable explanation.

b) The provided passage questions traditional views of the cosmos in that it advocates the existence of life on other planets. Traditionally, Catholics held that humans were the only intelligent life in the universe, but Kepler calls into question the logic of that statement.

c) The discovery of the movement of the planets by Kepler and Galileo also challenged traditional views of nature. It was discovered that planets orbited the sun in ellipses, not perfect circles, and that they moved at different speeds. This undermined the belief of the cosmos was made up of "heavenly spheres" created by God in perfection. Previously, it was held to be true that planets moved at the same speed in perfect circular orbits, holding with Greek views of the universe. This new discovery undermined the alleged perfect creation of the universe by God.
This affects traditional views of the cosmos because Kepler refutes all other beliefs on Earth made by God. Allowing similar basis of scientism, creationist theory is supported by the Church and by the Bible. God is not being questioned within this statement as it will be in the future.

On the other hand, it challenges the traditional views of the cosmos by striking heliocentric theories as opposed to geocentric theories supported by the Church and the Bible. It was common understanding in the science community that the Earth revolves around the sun at this point in time.

The ideas of evolution challenged the churches mindset that man was made in the image of God. Charles Darwin and his theory of evolution says the opposite, that man was evolved from centary from more primitive animals such as monkeys and apes. This goes against the church's beliefs and led to future reforms.
Write your answer to SHORT-ANSWER QUESTION 4 on this page only.

a) They still maintain the thought that God is the creator of the world, expressed as “variety of works and manifestation of God”. Religion and its beliefs on God still has a great impact on thoughts of intellectuals.

b) They no longer support the geocentric theory, where they thought Earth was the center of the universe, with support of observations of space (Galilean) telescope etc. They develop heliocentric theory, where sun is the center of the universe and that there are planets other than Earth.

c) Newton’s law of motion and law of gravitational force challenged the traditional views of nature. They originally thought the god is the controller of the nature, but Newton scientifically proved that force exists that allows all the motions of objects to happen. It led to Deist beliefs where they thought God doesn’t play a role in nature anymore, even though he still is a creator of universe.
Short Answer Question 4

Overview

Responses were expected to demonstrate the ability to show how a particular historical source is representative of general changes and continuities in a given time period. Specifically, responses were expected to demonstrate an understanding of how the quote from Kepler was typical of the “new science” of the sixteenth and seventeenth centuries, in that it shows how traditional sources of authority coexisted with scientific methods and reason.

Sample: 4A
Score: 3

The response to part a) earned 1 point by explaining how the quote reflects the belief that “God created the universe and everything inside of it.” The response to part b) earned 1 point by noting that Kepler’s raising of the possibility of the existence of life outside earth challenged the traditional view that humans were the only intelligent life. The response to part c) earned 1 point by noting the discovery of the elliptical orbits of the planets by Kepler and Galileo, which challenged the idea of planets moving in perfect circular orbits.

Sample: 4B
Score: 2

The response to part a) earned 1 point by stating that the belief that all things were created by God was in keeping with the views affirmed “by the Church and by the Bible.” The response to part c) earned 1 point by mentioning heliocentrism as a theory opposed to the geocentric theories supported by church authorities. Note that this part of the response is labeled as a response to part b), but it was credited as a correct response to part c). The intended response to part c) is off-topic, since Darwin was not a figure of the Scientific Revolution, and it earned no credit.

Sample: 4C
Score: 1

The response to part a) did not earn a point because the reference to God as the “creator of the world” is not a sufficient discussion of traditional views. The response to part b) did not earn a point because the mention of geocentrism and heliocentrism is not referenced in the passage and is not sufficiently developed. The response to part c) earned 1 point by discussing how Newton’s development of the laws of motion and gravity challenged the concept of God as in control of natural forces.