Unit 2 - Structuring Argument

Name

(1) 1982 was an extraordinary year for many reasons: the first artificial heart was implanted in a human patient, human insulin was created using bacteria, and the first CD player was sold. (2) In 1982, paleontologists studying the fossil record noticed something curious: the major extinction events—such as that of the dinosaurs approximately 66 million years ago—seemed to have occurred regularly every 26 million years. (3) Could astronomical events, such as the asteroid strike believed to have caused the dinosaurs' extinction, be responsible for all of these events?

(4) To answer this question, in 1984 physicist Richard Muller proposed the existence of a twin star in our solar system, a red dwarf companion to the Sun approximately 1.5 light-years away. (5) Every 26 million years, when this "Nemesis" star passed through the Oort cloud, a theoretical sphere of icy debris at the outer edge of the solar system, it would create disturbances that would send icy bodies on a catastrophic collision course with Earth.

(6) Small and dim, such a star could not have been seen with the technology available at the time, but subsequent research, such as the discovery of other systems where debris disks like the Oort cloud appeared to have been affected by a companion star, seemed to support the Nemesis theory. (7) And in 2003, when astronomers discovered a dwarf planet in the outer reaches of the solar system, far from the Sun, they were surprised.

(8) However, as technology has become more sophisticated, the Nemesis theory seems increasingly unlikely. (9) For one thing, recent fossil studies have shown that extinction events also occur at times other than every 26 million years; in fact, some scientists believe that they occur randomly—that is, with no discernible pattern or predictability. (10) And while the Sun may well have had a twin at some point (a 2017 study of the Perseus molecular cloud suggests that most stars like the Sun were formed with companions), most experts now agree that if Nemesis ever existed, it broke free of the solar system early in the Sun's history, long before there was life on Earth, and thus could not have figured in any extinctions. (11) Neither of two large-scale studies using highly sensitive instruments—2MASS and NASA's WISE—have detected anything that could be Nemesis.

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1. The writer is working on a new version of the passage and wants to include an explicit statement of the passage's thesis.

Which of the following would best serve as a thesis statement for the passage?

Unit 2 - Structuring Argument

(A) Recent research has revealed that Nemesis, a twin star to our Sun, has the ability to create astronomical events that affect the planets in our solar system.

(B) It is unlikely that scientists will ever be able to identify why major extinction events seem to occur every 26 million years.

(C) While the theory was initially promising, the existence of Nemesis (a supposed companion star to the Sun) and its effect on extinction events on Earth, is highly doubtful.

(D) Advances in technology greatly assist scientists in their work to prove the validity of theories posited by earlier researchers.

(E) Debris disks are always affected by companion stars, so researchers should focus on identifying the companion star linked to the Oort cloud in order to further research on why extinction events occur every 26 million years.

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2. In sentence 7 (reproduced below), the writer wants to provide another piece of relevant evidence to elaborate on the claim made in the previous sentence about how subsequent research seemed to confirm the Nemesis theory.

And in 2003, when astronomers discovered a dwarf planet in the outer reaches of the solar system, far from the Sun, <u>they were surprised</u>.

Which of the following versions of the underlined text would best accomplish this goal?

(A) (as it is now)

(B) there was some initial debate over the question of whether this was truly a dwarf planet or something else entirely

(C) the search for additional dwarf planets in the remote reaches of the solar system began in earnest

(D) they were eager to ascertain both its precise size and the exact nature of its composition

(E) they concluded that its huge, elliptical orbit might well be attributable to the gravitational pull of an unseen twin

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Unit 2 - Structuring Argument

3. In sentence 10 (reproduced below), the writer is considering deleting the underlined parenthetical text.

And while the Sun may well have had a twin at some point (a 2017 study of the Perseus molecular cloud suggests that most stars like the Sun were formed with companions), most experts now agree that if Nemesis ever existed, it broke free of the solar system early in the Sun's history, long before there was life on Earth, and thus could not have figured in any extinctions.

Should the writer keep or delete this text?

(A) Keep it, because it introduces the discussion of the two studies mentioned at the end of the passage.

(B) Keep it, because it suggests a possible avenue for additional study of other stars besides the Sun.

(C) Keep it, because it provides direct support for the concession made earlier in the sentence.

(D) Delete it, because it interrupts the flow of the argument by introducing irrelevant information.

(E) Delete it, because it appears to contradict the experts' view described later in the sentence.

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4. The writer understands that the audience for this passage is very familiar with the structure of the solar system. Which of the following revisions should the writer make, adjusting punctuation as needed, to account for the audience's expertise?

(A) In sentence 2, changing "approximately 66 million" to "between 65 million and 66 million"

(B) In sentence 3, changing "astronomical" to "cosmological"

(C) In sentence 4, deleting "a red dwarf companion to the Sun"

(D) In sentence 5, deleting the parenthetical phrase "a theoretical sphere of icy debris at the outer edge of the solar system"

(E) In sentence 6, changing "Small and dim" to "Having both low mass and low luminosity"