〔 I 〕

Read the following article carefully and answer the questions. For each question, choose ONE BEST answer. On your answer sheet, find the number of the question and fill in the space that corresponds to the number of the answer you have chosen.

(Based on Michael D. Gordin. 2015. "*Scientific Babel.*")

① First, is English bad for science — not because it is English, but because it is a single language? Does science benefit when it is multilingual? The contrary position — that it is simpler to have one vehicular language than to have three, let alone dozens — although ignored when Esperantists*1 proffered it, now seems to hold sway. There are plenty of examples of facts delayed in transit, as when it took the rest of the world several years to catch up to what the Japanese were finding out about the plant hormone gibberellin, simply because the publications were trapped in *kanji* and *katakana*. So maybe everyone wins when communication expands.

② Or do they? The earliest losers in the lottery of scientific languages are younger students. Imagine a child in sub-Saharan Africa who is being taught chemistry. In what language is the class? If in a Bantu language, who translated the word for "oxygen"? Such a concept has been around for long enough that it might have filtered down to local languages around the world. But how about more contemporary concepts, like ozone depletion, or the Planck length, or object-centric debugging? Educational research to date indicates that children understand scientific concepts better when presented in their native language, but that requires textbooks and lesson plans in all the world's languages. Those don't exist. The further one advances in science, the greater the scarcity of non-English educational materials. If you want to study topological theory or stereochemistry in college, your English needs to be up to snuff. How many students are lost not because of weak scientific skills, but weak linguistic ones?

③ In the less mathematical sciences, even professional scientists — those who have already cleared the hurdles of advanced education and who presumably are more than passingly familiar with English texts — sometimes suggest that something has been lost with monolingualism. All science develops through making connections between seemingly unrelated phenomena, and much of this work begins through linguistic metaphors. "If everyday speech is no longer the source of the specialized languages, the linguistic images will be lacking which are necessary to make something novel vividly understandable," noted one frustrated German scientist. "Since every language affords a different point of view onto reality and offers individual patterns of argumentation, this leads to a spiritual impoverishment if teaching and research are hemmed into English." This resembles the Whorfian hypothesis*[2] — that languages carve up nature, and we all live in different worlds shot through with our native languages — but it is hardly so ambitious. Rather, the claim is that insights come more quickly in words that are more familiar. It is, simply, a plea for identity. One might also anticipate harmful consequences for public policy. It is challenging enough to persuade politicians to act on scientific, technological, or medical evidence given the paucity of public officials with scientific training and the difficulty of understanding the nuances of the data. Add to this a language barrier, and the situation rapidly worsens. These are problems only for the non-English speakers, but there are burdens on the other side as well, as native speakers of English are imposed upon to translate or correct their peers' papers, and locked out of private foreign-language conversations between lab-mates and at conferences.

④ Does the English language itself suffer when, as is currently the case for perhaps the first time in history, nonnative speakers of a living language start to greatly outnumber native speakers? If you wanted to isolate an effect, science would be a good place to look, because it has been English-speaking longer and more completely than any other domain of cultural endeavor. The "English" that is used in scientific communication — particularly in written form, but also quite often in oral interchange — is simplified, reduced, stereotyped to highlight communication and minimize stylistic nuance. German sociologist Wolf Lepenies has called this dialect "English Ⅱ," which another commentator worries has become nothing more than "a practical, reduced communications code."

⑤ Imagine one ironic outcome: To the extent Scientific English resembles Basic English, and Basic English was dreamed up in part to minimize the "pidginization" of English in colonial contexts, Scientific English might itself become the pidgin*[3]. "Under certain circumstances English as a scientific language in non-English-speaking countries would degenerate into a cookie-cutter-language," linguist Sabine Skudlik observes, "in cases where constant feedback from mother-tongue speakers is not to be expected. This development would be desirable for nobody."

⑥ Almost certainly true, if the effect is in fact happening. The reader may have noticed that we are discussing scientists' and linguists' rampant speculations about the future, ill-disguised as a conversation about the present. There seems no way to talk about English speaking in science without willy-nilly drifting into ruminations over where this all might lead. Before fully indulging that impulse, it is important to not lose the central lesson of our discussion so far: English has attained its current position owing to a series of historical transformations that it also in turn shaped, exploiting a perception of neutrality that it gained through being distinctly non-neutral in either its British or American guise.

There is a circularity to studying language and history together, scrambling our notions of time even in the buttoned-down domain of science. The history of scientific language ends here, until it no longer does.

*[1] Esperantists: a person who uses the language Esperanto (an internationally created artificial language).

*[2] Whorfian hypothesis: linguistic relativity that affects a speaker's perspective.

*[3] pidgin: a simplified mixture of languages.

Q 1. In paragraph ① (line 3), the underlined word vehicular is closest in meaning to —

1. contented way for people
2. insufficiently transporting
3. knowledge transmitting
4. manually multidirectional
5. principally delayed

Q 2. In paragraph ① (line 4), the underlined phrase hold sway is closest in meaning to —

1. consider the alternative
2. grip loosely
3. maintain dominance
4. move side to side away from favor
5. weaken over time

Q 3. In paragraph ② (line 10), the underlined phrase up to snuff is closest in meaning to —

1. able to look up completely
2. at a functional degree
3. elevated to just below a minimum level
4. effective in one of the three areas of reading, writing, and speaking
5. occasionally understandable

Q 4. Which of the following is true of the author's description in paragraph ②?

1. Linguistic discussions in science are critical at advanced levels.
2. Modern frontiers of science are mainly accessible through one language.
3. New concepts are better understood by younger students in any country.
4. Basic terms are so universal that most languages have definitely adopted them for use.
5. Students understand material deeply only when organized into a standardized format.

Q 5 . In paragraph ③ (line 1), the author's usage of the underlined phrase less mathematical sciences is meant to emphasize the point that —

1. Mathematical sciences are entirely concerned with the abstract.
2. Mathematical sciences generally do not rely heavily on languages.
3. More mathematical sciences easily clear obstacles at higher levels of study.
4. Sciences not reliant on mathematics excel in the ability to establish relationships between events.
5. Sciences lacking mathematics require that one be able to pass in understanding in a single language.

Q 6 . In paragraph ③ (line 10), the underlined word hemmed is closest in meaning to —

1. balanced
2. destroyed
3. edged
4. opened
5. torn

Q 7 . Which of the following best expresses the key information in the underlined sentences in paragraph ③ (lines 13-17) ?

1. Language barriers cause pauses in understanding and scientific actions.
2. If elected officials were more familiar with scientific illiteracy, language barriers would be of no consequence.
3. The challenge in science, technology, and medicine is to adopt an understanding of any language barriers.
4. Public policy can be anticipated and avoided by understanding language barriers and subtle scientific differences.
5. The impact on people by those who make decisions and cannot comprehend scientific terminology is intensified by language barriers.

Q 8 . Which of the following does NOT correspond to the author's description in paragraph ④ ?

1. Scientific communication can be viewed as a local form of writing.
2. Science excels at studying isolated effects, because of its methodology.
3. Decreasing style variations permit a simple, functional means to share information.
4. The process of identifying general patterns in language can serve to emphasize dialect.
5. Native English speakers have been greater in number in scientific endeavors, but that is no longer the situation.

Q 9. In paragraph ⑤ (line 5), the underlined word cookie-cutter-language is closest in meaning to —

1. advisable language
2. ideal language
3. limited pattern language
4. unused language
5. varied language

Q10. In paragraph ⑥ (line 3), the underlined word ill-disguised is closest in meaning to —

1. apparent
2. indifferent
3. practical
4. unhealthy
5. widespread

Q11. In paragraph ⑥ (line 4), the underlined word willy-nilly is closest in meaning to —

1. defensively
2. organized
3. precise
4. random
5. studied

Q12. When the underlined word circularity (paragraph ⑥, line 9) is pronounced, one part (syllable) of the word should be emphasized the strongest. Which of the following has the same part that needs to be emphasized the strongest when pronounced?

1. apologetic
2. desegregated
3. diagnostician
4. indivisible
5. obligatory

Q13. Which of the following is NOT mentioned in this article?

1. Metaphors have a place in the process of science.
2. Scientific language development remains in flux, yet nothing has really changed.
3. The development of an uncomplicated manner of speaking can be a form of descent.
4. Some scientific discoveries are held in a corner when concentrated only in local languages.
5. Because research advances do not need education, the language used for communication conveys multilingual perspectives.

〔II〕

Read the following article carefully and answer the questions. For each question, choose ONE BEST answer. On your answer sheet, find the number of the question and fill in the space that corresponds to the number of the answer you have chosen.

(Based on David Wootton. 2015. '*The Invention of Science: A New History of the Scientific Revolution*'.)

① It is easy to think that a new knowledge comes from new types of apparatus — Galileo's telescope, Boyle's air pump, Newton's prism — not from new intellectual tools. Often this is a mistaken view: in a hundred years time the randomized clinical trial (streptomycin, 1948) may look much more significant than the X-ray (1895) or even the MRI scanner (1973). New instruments are plain as pikestaffs*1; new intellectual tools are not. As a result we tend to overestimate the importance of new technology and underestimate the rate of production and the impact of new intellectual tools. A good example is Descartes' [Q14] of using letters from near the end of the alphabet (x, y, z) to represent unknown quantities in equations, or William Jones's introduction of the symbol π in 1706. Leibniz believed that the reform of mathematical symbols would improve reasoning just as effectively as the telescope had improved sight. Another example is the graph: graphs are now [Q15], so it comes as something of a shock to discover that they only began to be put to use in the natural sciences in the 1830s, and in the social sciences in the 1880s. The graph represents a powerful new tool for thinking. An absolutely fundamental concept, that of statistical significance*2, was first propounded by Ronald Fisher in 1925. [Q16] it, Richard Doll would not have been able to prove, in 1950, that smoking causes lung cancer.

② Physical tools work very differently from intellectual tools. Physical tools enable you to act in the world: a saw cuts through wood, and a hammer drives home nails. These tools are technology-dependent. The screwdriver only came into existence in the nineteenth century, when it became possible to mass produce identical screws; before that the few handmade screws that were used were turned with the tip of a knife blade. Telescopes and microscopes depended on pre-existing techniques for making lenses, and thermometers and barometers depended on pre-existing techniques for blowing glass. Telescopes and thermometers do not change the world around them as saws and hammers do, but they change our awareness of the world. They transform our senses. Montaigne*3 said that people can see only with their own eyes; when they look through a telescope (which of course Montaigne never did) they still see only with their own eyes, but they see things they could never see with their unaided eyesight.

③ Intellectual tools, by contrast, manipulate ideas, not the world. They have [Q18a] preconditions, not [Q18b] preconditions. Some instruments are both physical and intellectual tools. An abacus*4 is a physical tool for carrying out complicated calculations; it enables you to add and subtract, multiply and divide. It is perfectly material, but what it produces is a number, and a number is neither material nor immaterial. An abacus is a physical tool for performing mental work. So too are the Arabic numerals we take for granted. I write 10, 28, 54, not, as the Romans did, x, xxviii, liv. Arabic numerals are tools which enable me to add and subtract, multiply and divide on a piece of paper far more fluently than I could with Roman numerals. <u>They are tools that exist as notations on the page and in my mind; like the abacus, they transform the way I operate on numbers.</u> The number zero (unknown to the Greeks and the Romans), the decimal point (invented by Christoph Clavius in 1593), algebra, calculus: these are intellectual tools which transform what mathematicians can do.

④ Modern science, it should now be apparent, depends on a set of intellectual tools which are every bit as important as the abacus or algebra, but which, unlike the abacus, do not exist as material objects, and which, unlike arabic numerals, algebra, or the decimal point, do not require a particular type of inscription. They are, <u>at first sight</u>, merely words ('facts', 'experiments', 'hypotheses', 'theories', 'laws of nature', and indeed 'probability'); but the words encapsulate new ways of thinking. The peculiar thing about these intellectual tools is that (unlike the intellectual tools employed by mathematicians) they are conditional, uncertain, [Q22]; yet they make possible reliable and robust knowledge. They imply philosophical claims which are difficult, perhaps impossible, to defend, yet in practice they work well. They served as a passage between Montaigne's world, a world of belief and misplaced conviction, and our world, the world of reliable and effective knowledge. They explain the puzzle that we still cannot make a fistful bigger than a fist, or a stride longer than our legs can stretch, but that we can now know more than Montaigne could know. Just as the telescope improved the capacities of the eye, these tools improved the capacities of the mind.

⑤ Alongside these intellectual tools we can see the emergence of a community accustomed to using them: the new language of science and the new community of scientists are two aspects of a single process, since languages are never private. What [Q23] was not just the new language, but a set of competitive and cooperative values which were expressed in the language used to describe the scientific enterprise (rather than in scientific arguments themselves), expressed in terms of discovery and progress and eventually institutionalized in eponymy*5. What is striking about these intellectual tools and cultural values is that they have proved to have a history quite unlike that of paradigms. Paradigms flourish; some then die, and others get relegated to introductory textbooks. The new language and the new values of science have now survived for 300 years (500 years if we go back to their common origin in 'discovery'), and there is nothing to suggest they are likely to go out of fashion soon. Just like algebra and calculus, these tools and these values represent acquisitions which are too powerful to be discarded, and which remain not as museum pieces but are in constant use. Why? Because the new language and culture of science still constitute (and I believe will always constitute) the basic framework within which the scientific enterprise is conducted. Their invention is part and parcel of the invention of science.

*1 pikestaff: the long pole portion of a spear.

*2 statistical significance: differences proven by analyzing numerical data.

*3 Montaigne: Michel de Montaigne (1533-1592), French philosopher who influenced Western literature/writers, most known for his creation of the literary category of composition called the essay.

*4 abacus: a frame with sliding beads used for counting.

*5 eponymy: names formed from other preexisting words.

Q14. In paragraph ① (line 7), which of the following could best be added in [Q14] ?

1. condensation
2. elimination
3. fragmentation
4. innovation
5. punctuation

Q15. In paragraph ① (line 11), which of the following could best be added in [Q15] ?

1. odd
2. questionable
3. restricted
4. ubiquitous
5. weak

Q16. In paragraph ① (line 15), which of the following could best be added to [Q16] ?

1. Because of
2. Embracing
3. Including
4. Turning to
5. Without

Q17. Which of the following can best be inferred from the author's discussion in paragraph ①?

1. Any alphabet letters are an integral part of graphs.
2. New mathematical symbols and telescopes equally enhance physical sight.
3. Approximations regarding technology and production rates are often in harmony.
4. Fisher, Leibniz, and Doll created new architectural physical structures that transformed technology.
5. Intellectual tools tend to be underestimated in their power and capabilities in comparison to physical tools.

Q18. In paragraph ③, which of the following contains a set of words that could be best added in [Q18a] and [Q18b], respectively?

	Q18a	Q18b
1.	actual	theoretical
2.	conceptual	technological
3.	manufacturing	civic
4.	substantial	remarkable
5.	undetectable	psychological

Q19. In paragraph ③ (lines 9–10), the key information of the underlined sentence means —

1. Paper notation tools cannot have a physical counterpart to coexist.
2. Unlike intellectual tools, physical tools must be immaterial to function.
3. All physical tools require an attachment to numbers so that they can carry out conversions.
4. Intellectual and physical tools are both capable of greatly altering the way concepts are managed.
5. Existing notations do not need to function in multiple places and therefore cannot still exert an influence.

Q20. Which of the following is true regarding the author's descriptions in paragraphs ② and ③?

1. Microscope technology was heavily centered on glass blowing skills.
2. Physical and intellectual tools greatly impact our world in different ways.
3. Awareness tools change physical surroundings in a direct and ordinary manner.
4. Supplemented vision is inefficient for altering perspectives on the environment.
5. Knives were the only tools to rotate screws when they were indistinguishable in character.

Q21. In paragraph ④ (line 4), the author's usage of the underlined phrase at first sight is meant to emphasize the point that —

1. One must first see the small form.
2. The meaning is watchful to the eye.
3. Vision is always the beginning step.
4. A second look is as good as the first.
5. Initial impressions should be reconsidered.

Q22. Which of the following phrases could best be added to [Q22] in paragraph ④ (line 8) ?

1. absolute
2. enriched
3. imperfect
4. independent
5. unchangeable

Q23. In paragraph ⑤ (line 3), which of the following phrases could best be added to [Q23] ?

1. blocked community development
2. created community suppression
3. held this community together
4. pushed back community resources
5. transferred community members

Q24. Which of the following is true of the author's description in paragraph ⑤ ?

1. Gains in science are just like display items that do not remain in use for all to see.
2. Science is built on findings that are strengthened with gains that later follow.
3. Cultural values are the main components in science communication, discovery, and future changes.
4. All scientific facts are entirely created, shaped, eventually become included in textbooks, and quickly fade from use.
5. Physical tools like algebra and calculus are ineffective ways to expressfundamental scientific disagreements.

〔Ⅲ〕

Read the following article carefully and answer the questions. For each question, choose ONE BEST answer. On your answer sheet, find the number of the question and fill in the space that corresponds to the number of the answer you have chosen (Questions 25 to 34). For Writing Questions "A", "B", and "C", write your answer(s) in the corresponding spaces provided on the Writing Answer Sheet.

(Based on Neil Canavan. 2018. "*A Cure Within: Scientists Unleashing the Immune System to Kill Cancer.*")

① Elizabeth Jaffee was born in 1959 in Brooklyn, New York, and for a while there, it was a blast.

② "I loved living there!" says Jaffee, <u>pushing forward in her chair, direct, speaking right into your face</u>. "You walked everywhere. I walked to Hebrew school, to the library, to my favorite pizza shop. It was freedom!" The family home was modest at best, but it didn't matter. "Who knew you were poor? You didn't know you were poor." They had riches to spare; <u>they owned the streets</u>. "We played stoopball, yeah, that was big, and ring-a-levio." Ring-a-levio is a game like hide-and-seek, ... games (sometimes played all day) often were only <u>called</u> on account of darkness.

③ As a child, Jaffee wanted to be an astronaut, a dream eventually crushed by the harshness of certain realities. "It turns out I don't like tight spaces," Jaffee laughs, "And I don't like heights." Luckily, her fallback plan was to be a scientist, and that was a good thing because you should not <u>dither</u> about such things forever and she was already in the fourth grade.

④ "I read a very important book, the story of Marie Curie," says Jaffee, "And I just fell in love with the whole concept of doing science." Curie was a pioneer in the research of radioactivity, and the first woman to win the Nobel Prize. Units of radioactivity, curies, honor her name.

⑤ "I think I picked her because she was a woman scientist," but the choice had nothing to do with feminism. "In the fourth grade you don't really think that there are differences between men or women who go into science. I saw the challenge as doing science, not the challenge of being a woman in science."

⑥ That raises a curious question though: When does a little girl first become aware of gender bias in science? Jaffee tries to find some humor in thinking about it. "I was my girls' Brownie troop*1 leader when they were growing up, and one time I took them to a Science Day." It was an event featuring a group entirely of women scientists, ranging from a NASA (National Aeronautics and Space Administration) scientist to a high school science teacher.

They did these little experiments with the kids. "Then we sat around and each of the scientists told how they got into science, and then it was time for Q and A and one of the fourth-grade kids raises her hand and she said, 'Do boys go into science too?' And, 'if so, how do you work with them in the workplace?' I mean, this is classic. And it just makes you realize that [A]."

⑦ So what happens? Why do so few of these fearless girls go into science? <u>The answer to that question is likely a book in itself.</u> "It's getting better, I think, but it's still an issue." And gender bias is not just an issue for little girls. "When I started here, they wanted me to start at $25,000 less than someone who was contributing less and starting at the same time. I started the whole translational program in immunotherapy*2. If I had left, I don't know that all this would have happened, at least not this quickly."

⑧ After high school came college at Brandeis University, where Jaffee's mentor was less inspiring. The time was 1977 and Jaffee had read a paper just the year before on hybridoma*3 technology. It was a revelation and, with eyes opened maybe a bit too wide, she went looking for an immunology mentor.

⑨ "I wanted to use that technology to understand B cells*4, and I was working with this young faculty member at the time, Joan Press," says Jaffee, eyes narrowing. "She was one of these people who didn't like pre-med students, and she thought I just wanted to work there to get a good recommendation." Although mentor Press was willing to impart scientific knowledge, when it came to advising on career choices, "I was on my own."

⑩ So, off to New York Medical College, then a year at the National Institutes of Health (NIH), then to Johns Hopkins University, and all during this time the concept of cancer immunotherapy was starting to play out as a real thing. "It was good timing because when I was in my residency*5 we were just learning that IL-2*6 was good to grow T cells*7." At the same time, other nascent tools and technologies were <u>spurring</u> the field, so much so that not long after she got into the show Jaffee was contributing to the parade of new techniques.

⑪ Innovations aside, initial support for her Immuno-Oncology*8 efforts was wobbly at best. "In fact, Mike Kastan, a good friend of mine . . . was meeting with me to discuss my career. He says, 'Okay, immunotherapy, yeah, you can do that,' but then he says, 'Vaccines? Shouldn't you be doing something else?'" The reputation for cancer vaccines at the time was that they were fundamentally flawed; tumors were simply thought to be nonimmunogenic. The immune system can't see them. Vaccines don't work.

⑫ "I probably should have listened," says Jaffee, "Who knows? Maybe I would have been rich and famous by now." <u>But she didn't listen because the science made too much sense.</u> "I really believed that vaccines were the best way to specifically activate T cell and B cell responses against any foreign antigen*[9], and we were looking at cancer as making foreign antigens."

⑬ However, all of these ideas were still speculation at the time that Jaffee threw in with the "Vax-Heads*[10]." What prompted her choice were the new tools. "I got in as genetics was finally catching up," says Jaffee, explaining that many of the genes responsible for mediating the immune response had recently been sequenced, and genes, like ingredients in a cake recipe, can be used to bake all sorts of things. What Jaffee and other colleagues baked was the first ever genetically engineered tumor vaccine.

*[1] Brownie troop: the name of a subgroup within the Girl Scouts (an American young girls organization), specifically for girls ages 7 to 9.

*[2] translational program in immunotherapy: transferring lab discoveries into treatments for patients (to assist in body defense mechanisms).

*[3] hybridoma: a cell created by combining a white blood cell with a tumor cell, used for the creation of antibodies (proteins that fight disease).

*[4] B cells: one type of white blood cell.

*[5] residency: advanced medical training after graduation from medical school.

*[6] IL-2 (interleukin-2): a chemical messenger involved in cell-to-cell communication.

*[7] T cells: another type of white blood cell.

*[8] Immuno-Oncology: a field of study involving body defenses and cancer therapy.

*[9] antigen: a substance that triggers a body defense response.

*[10] Vax-Heads: a group of people devoted to studying vaccines.

Q25. In paragraph ② (lines 1-2), the underlined portion of the sentence is intended to convey the meaning that —

1. Jaffee is eager to share her story.
2. Humbleness is a personality trait of the speaker.
3. It is important that you talk subtly to other people.
4. There is favoritism behind the relaying of the information.
5. Both the author and Jaffee are surprised by their shared memories of that time and place.

Q26. In paragraph ② (line 5), the underlined phrase <u>they owned the streets</u> is included to convey the meaning that —

1. The street's resources could not be found on every corner.
2. A huge amount of value was to be found only inside the home.
3. It cannot be forgotten that street games could only be played in one's spare time.
4. The most dependent way to access pizza shops, schools, and libraries was to go by foot.
5. The concept of "home" extended to include a wide volume of space that included the neighborhood.

Q27. In paragraph ② (line 7), the underlined word <u>called</u> means —

1. conducted
2. labeled
3. simplified
4. terminated
5. voiced

Q28. In paragraph ③ (line 4), the underlined word <u>dither</u> is closest in meaning to —

1. be strong-minded
2. decide quickly
3. hesitate
4. move forward
5. turn over

Writing Answer Question "A" (paragraph ⑥ line 9)

On the Writing Answer Sheet, put the following words into the proper order necessary to complete the sentence in [A] so that it makes best sense within the context of paragraph ⑥. Write your answer in the space provided in the Writing Answer Question "A" section. The word "at" should be the first word and the word "girls" should be the fourth word.

[age] [anything] [can] [do] [that] [they] [think]

at [ ] [ ] girls [ ] [ ] [ ] [ ] [ ].

Q29. In paragraphs ④, ⑤, and ⑥, collectively, which of the following is NOT true of the author's descriptions?

1. Jaffee fell in love with the contents of a book that eventually changed her life.
2. Gender bias is not an awareness that usually affects elementary school age children.
3. Curie was honored primarily as a dedicated pioneer in the advocacy of human gender equality in all areas of life.
4. Looking back, Jaffee chose to mainly focus on the positive side of her memories as they relate to science and education.
5. Curie served as an inspiration to Jaffee, because it was natural to aspire to becoming someone like Curie — a person who loved doing their job.

Q30. In paragraph ⑦ (lines 1–2), the underlined sentence "<u>The answer to that question is likely a book in itself.</u>" means —

1. Only authors are qualified to discuss the issue fairly.
2. There are many, possibly complicated and far-reaching, reasons.
3. Fearlessness is something that is learned best from stories and books.
4. Explaining things will help things get better in a shortened time period.
5. Jaffee plans to write a book explaining how her field was quickly formulated.

Q31. In paragraphs ⑧ and ⑨, which of the following is true of the author's descriptions?

1. Mentors in one's chosen field are easily found anywhere.
2. Press was perfect for helping Jaffee with technical know-how and job hunting.
3. Jaffee's optimism in high school carried over into her college years and grew stronger.
4. One has to exert minimal effort, with a dependent initiative, in order to obtain excellent recommendations.
5. Jaffee was wrong in her belief that all her instructors would understand her eagerness for science and help her connect with others in the field.

Q32. In paragraph ⑩ (line 5), the underlined word spurring is closest in meaning to —

1. criticizing
2. delaying
3. mixing
4. prompting
5. sticking

Q33. Paragraphs ⑪ and ⑫ need to be considered together. Which of the following can best be inferred from the author's message in the underlined sentence in paragraph ⑫ (line 2) ?

1. Many people strongly urged Jaffee to pursue her ideas at all costs.
2. Jaffee's friend was the only person to support her vaccine studies.
3. It is important to know when to listen, because your peers are always right.
4. Improvement and support for Jaffee were strong and substantial from the beginning.
5. Standing by one's own convictions is important if the evidence in support of your position is strong.

Q34. In paragraph ⑬ (line 1), the underlined phrase threw in means —

1. dissolved
2. divided
3. linked
4. mocked
5. use make-believe

Writing Answer Question "B"

On the Writing Answer Sheet, complete Elizabeth Jaffee's biographical profile in the table provided, based on information contained in Article Ⅲ. Write your answers in the appropriate row of the table, provided in the Writing Answer Question "B" section. Please write clearly and be careful of spelling.

Writing Answer Question "C" (includes C1 and C2)

On the Writing Answer Sheet, write the appropriate words in the blocks provided in the Writing Answer Question "C" (C1 and C2) section to complete the summary sentence below. C1 requires exactly seven letters and C2 requires exactly six letters. The words required appear in the main text. You must use the appropriate words from the main text. Please write clearly.

Elizabeth Jaffee created a new [C1] that could be injected into human bodies to help them fight against [C2].

〔IV〕

Read the following question carefully and answer the question. Choose ONE BEST answer. On your answer sheet, find the number of the question and fill in the space that corresponds to the number of the answer you have chosen.

The following question pertains to <u>all three articles</u> (I , II , and III).

Q35. Which of the following expresses a statement that correctly summarizes and could be considered representative of the overall concepts for all three articles (I , II , and III) ?

1 . Advances in science are made when language is the only factor in communication, regardless of tools and technology.

2 . Scientific research is easier when the technological physical tools delay the history of its communication allowing for intellectual tool creation.

3 . Science requires that only intellectual language and culture, not physical and technological considerations, excessively influence developments.

4 . Scientific advances involve historical changes that influence the way of communication and the timing that is right for physical and intellectual tool development.

5 . Progress in science occurs when language does not interfere with the historical creation of intellectual concepts that never allow for technological combinations.