

Question 1-11 are based on the following passage.

The Unexpectedly Practical Art of Origami

Origami, **1** the art of paper folding is much more than just paper cranes. With its exquisite folds and intricate geometric shapes, origami has long captivated the minds of those seeking to apply **2** devious solutions to engineering challenges. In recent decades, concepts and techniques derived from origami **3** drive a variety of innovations in science and technology.

1

- A) NO CHANGE
- B) the art, of paper folding
- C) the art of paper folding,
- D) the art of paper, folding

2

- A) NO CHANGE
- B) sly
- C) artful
- D) Deceptive

3

- A) NO CHANGE
- B) have driven
- C) will drive
- D) drives

Consider, for example, the waterbomb, a classic origami design that, after a series of folds, allows the paper to be inflated through a hole in one corner to form a hollow, box-like shape. A team of scientists from Oxford University turned to this ancient design to help them develop an innovative new tool for the treatment of heart disease: a highly expandable heart stent. A heart stent is a device used to open up clogged arteries. Because heart stents need to be inserted into arteries, they must be extremely narrow. **4** By using the waterbomb origami design, the team was able to design a **5** stent—capable of being inserted at a width of 12 mm and expanding to a width of 23 mm.

4

At this point, the writer is considering adding the following sentence.

To effectively do their job of increasing flow of blood through the artery, however, the stents must be able to expand once inserted.

Should the writer make this addition here?

- A) Yes, because it describes the challenges of developing new origami designs that supports the claim of the following paragraph.
- B) Yes, because it clarifies the connection between a specific origami design and the function of a heart stent.
- C) No, because the suggestion that synthesizing art and medical technology can be dangerous contradicts the main idea of the paragraph.
- D) No, because the description of how a heart stent functions is not related to the paragraph's focus on the fusion of origami and technology.

5

- A) NO CHANGE
- B) stent capable of:
- C) stent capable of
- D) stent, capable of

[1]While the waterbomb dates back to the earliest days of paper-folding, **6** new origami folds are still being created in order to serve specific technical purposes. [2] As recently as 1995, for instance, the Japanese astrophysicist Koryo Miura developed what became known as the Miura fold. [3] **7** While puzzling over the large and unwieldy design of solar panels carried by spacecraft into orbit, Miura had noted that astronauts were required to carefully unfold the solar panels **8** with hand when the craft reached orbit. [4] The astronauts then had to fold the panels again before re-entering Earth's atmosphere. [5] Miura wanted to design a solar panel that could be folded and unfolded robotically, in order to automate this complex procedure. [6] This design allowed his robotic solar panels to be opened by only a few motors. **9**

6

Which choice best introduces the topic of the paragraph?

- A) NO CHANGE
- B) it remains one of the most influential designs in technological innovation.
- C) some scientists emphasize that its age is one of the factors in its value.
- D) contemporary innovators often draw inspiration from digital art forms.

7

- A) NO CHANGE
- B) He puzzled
- C) Although puzzling
- D) That he puzzled

8

- A) NO CHANGE
- B) by
- C) in
- D) on

9

The writer would like to add the following sentence to the paragraph:

Inspired by ancient Japanese origami techniques, Miura created a solar panel storage system consisting of a tightly packed fold that could be unfurled in one motion, by pulling on opposite ends of the structure.

The best placement for the sentence is

- A) before sentence 1.
- B) after sentence 3.
- C) after sentence 4.
- D) after sentence 5.

What is the next frontier of origami-inspired engineering? Not surprisingly, origami is going digital. In the emerging field of computational origami, complex computer models are being used to create more **10** intricate and efficient origami designs designed by computer models. While the practical applications of these new designs are still being studied, one thing is certain: origami will **11** be the only traditional art form that continues to inspire technological innovation.

10

- A) NO CHANGE
- B) origami designs that are intricate and efficient through computer modeling.
- C) intricate and efficient origami designs.
- D) DELETE the underlined portion.

11

The writer wants to conclude the passage with a prediction based on the main idea of the passage. Which choice best accomplishes this goal?

- A) NO CHANGE
- B) continue to inspire the minds of tomorrow's engineers.
- C) always be considered a fun and challenging activity for amateurs.
- D) remain an underappreciated art form with undiscovered applications.