國立成功大學

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注　意：1.不可使用計算機
2.請於答案卷(卡)作答，於試題上作答，不予計分。

I. Reading Comprehension: Read the article below and answer the questions that follow. Mark your answers on the scan sheet (3 points/per item, 54%)

[本大題於答案卡作答]

The Future of Fashion: Dreamweavers

A Alex Soza is a young and extremely creative Danish fashion designer. He says his ideas come to him in dreams. "I daydream. That's how I get ideas." One of his inventions, a jacket that stays suspended in the air like a balloon after it is taken off, arose from such a daydream. He explained, "I was on the subway, and this picture of a floating jacket popped into my mind." Alex Soza is one of many dreamers and pioneers who are turning textile fantasies into realities.

High-Tech Textiles

B Not so long ago, all fibers used to make textiles came from natural sources: wool from the hair of sheep, cotton from the cotton plant, silk from silk worms. The first truly synthetic fiber didn't appear until 1935, when scientists at the DuPont Company invented nylon. Nylon is just one of various industrially produced substances called polymers. Polymers can be pulled into a thread, which makes them well suited for use in textile manufacturing.

C Synthetic textiles have come a long way since nylon. Kevlar, a textile that is stronger than steel, is used in bulletproof vests and ropes used by astronauts in space. Other high-tech fibers can resist very high temperatures—perfect for firefighters and race-car drivers. While not all companies are forthcoming about their products for fear of having their ideas stolen, Huges Vinchon, an executive at Dubar-Warneton, a manufacturer of high-tech textiles in France, is happy to display some of the amazing synthetic fibers his company creates. There is an oil-eating textile that absorbs five times its weight in oil, and is perfect for cleaning up oil spills. Another absorbs vibrations. ("Can you imagine a motorboat you can't hear?" he says.) There is also an ordinary-looking cloth bag that is "completely water soluble," according to Vinchon. "It's strong enough to carry heavy objects. But if I dip it in boiling water, it disappears."

D Some high-tech textiles draw their inspiration from nature. Spider silk is a natural fiber that is five times as strong as steel. Unfortunately, spiders cannot be farmed, as they will eat each other. A Canadian biotechnology firm, Nexia, has come up with a possible alternative to spider farming: They have inserted the spider-silk protein gene into goats, thereby causing them to produce spider-silk protein in their milk. Nexia's head, Jeff Turner, is already dreaming of applications for the new fiber, named BioSteel. "Why use rockets to lift objects into orbit? . . . Why not have a [big] satellite and dangle a rope down to Earth and pull them up? . . . [There's] not a rope that will hold its weight at that length—but spider silk with its high strength-to-weight ratio could."

Wearable Electronics

E Textiles have always been used in clothing, and modern, high-tech textiles may redefine what clothes are all about. "In the past, clothing protected us from the elements," says Ian Scott, head of technology for women's wear at British department store Marks & Spencer. "Then clothing became about fashion. The future is about clothing that can do something for you. It's no longer passive. It's active." One example of this active clothing that he hopes to sell in the next few years is an "intelligent bra," a sports bra that can sense stress and adjust its dimensions to give perfect support.

F Other wearable electronics are being pioneered at a design laboratory in London run by the European manufacturer Philips Electronics. They are in the planning stages for various high-tech products, including an intelligent apron. This electronic apron acts as a kind of remote-control device. It has a built-in microphone that allows the wearer to operate kitchen appliances using voice commands. Another planned product is the Queen of Clubs outfit. According to a Philips spokesperson, "Here's an outfit for the girl who's really into clubbing. Sensors hidden in her clothes allow her to affect the lights and beat of the music . . . So that she can make contact with other people across the dance floor, she has . . . pants with lights that flash when someone is trying to get in touch."

G While there are many interesting clothing innovations to look forward to, the only item so far sold in stores was marketed a few years ago as the first wearable electronics jacket. The jacket, called the ICD+, sold for about a thousand dollars. It had an MP3 player and cell phone. Headphones were built into the hood, and it had a microphone in the collar. Clive van Heerden, director of Intelligent Fibres, pointed out that it was an early first step and a conservative one. "We want to make the jacket that makes the coffee and picks up the kids and keeps track of the shopping list, but it's not going to happen overnight."

Future Warriors

H One of the most important areas of clothing innovation is for military purposes. High-tech textiles are everywhere at the U.S. Army research center in Natick, Massachusetts. As part of their Future Warrior program, researchers are developing uniforms that will make a soldier difficult or impossible to see. Fibers in the uniform would take on the same color, brightness, and patterns of the wearer's surroundings. A soldier dressed in such a uniform would become nearly invisible to the enemy.

I The researchers at Natick are also working on portable buildings that are made of what are essentially large, high-strength textile balloons. Called air beams, these building materials would allow a team to build a structure large enough to hold airplanes in a fraction of the time a conventional metal structure would take. The largest air beams, about 0.75 meters (2.5 feet) in diameter and 24 meters (78 feet) long, are so rigid that you can hang a heavy truck from one. Yet they can be packed into a truck. Whereas a conventional metal hangar takes ten people five days to set up, one made of air beams can be set up by six people in just two days.

J Today's textile innovators are creating astonishing things. From Alex Soza's artistic jacket that defies gravity to smart aprons to invisible military uniforms, high-tech textiles will soon be appearing in more and more parts of our lives. Who can foresee what these textile pioneers will dream up next? "It's about imagination!" says Alex Soza, with a bright look in his eye. "It's a beautiful dream! It's turning science fiction into scientific fact!"

1. _____ The main idea of paragraph D is stated in sentence____.

.a. 1
b. 2
c. 3
d. 4

2. _____ Jeff Turner hopes that one day, ____ will be able to lift satellites into space.

a. Nylon
b. Kevlar
c. BioSteel
d. Air Beams

3. _____ In paragraph E, *the elements* is closest in meaning to____.

a. other people

b. toxic chemicals

c. fashion designs

d. harsh weather

4. _____ Which of the following is NOT mentioned in the article.

a. Textiles that can absorb large amounts of oil

b. Fibers that can resist high temperatures

c. Textiles that are made from 3-D printers

d. Fibers that can make clothing almost invisible

According to the passage, is this statement True (T) or False (F)?

5. _____ Most inventors share their ideas for the future with the public.

a. True

b. False

6. _____ *Predict* is an antonym of *foresee*.

a. True

b. False

7. _____ When something "happens overnight," it means that it occurs quickly.

a. True

b. False

8. _____ Nylon was invented in 1935.

a. True

b. False

Life in Miniature

Bacteria: They're invisible. They're everywhere. And we need them to live.

In our bodies, bacteria outnumber human cells by ten to one. All this bacteria weighs as much as your brain--nearly three pounds (1.3 kilograms). Most bacteria in our bodies are not harmful; in fact, many benefit us in important ways. They help us digest food. They make important vitamins, and they help fight infections. But some bacteria can be dangerous. Take, for example, *Staphylococcus aureus*. It lives in our noses. Usually, it's harmless; other bacteria in the nose control it. But if *S. aureus* travels to another environment, things change. In the skin, for example, it can cause deadly infections. We cure most bacterial infections with antibiotics, but there are problems with this medicine. Antibiotics kill bad, infection-causing bacteria. But this medicine kills good bacteria in our bodies, too. When we kill ***the good kind***, this can cause other health problems. A lack of certain bacteria in the body can make us sick.

So what can we do? We should not use antibiotics very often, say scientists. We can fight infections, but we also need to maintain helpful bacteria in the body. To help us do this, doctors are now developing "probiotic remedies." These new medicines will return certain bacteria to the body and restore the balance our body needs. For years, we thought all bacteria were dangerous. Of course, some are. But we are learning that many bacteria keep us healthy. They live on and within us, and our well-being depends on them.

9. _____ Where could you find a passage like this?
a. on the back of a medicine container
b. in an article of a health magazine
c. in a book about famous doctors
d. in a book of poetry

10. _____ What is true about *Staphylococcus aureus*?
a. It will kill you.
b. It lives in our throats.
c. It cannot hurt people.
d. It can cause health problems.

11. _____ In the fourth section of the passage, what does ***the good kind*** refer to?
a. medicine
b. infection
c. bacteria
d. health

12. _____ Why are doctors using "probiotic remedies?"
a. because people need more antibiotics
b. to keep healthy bacteria in the body
c. because all bacteria is dangerous
d. to develop new bacteria

13. _____How much does all the bacteria in our bodies weigh?
a. 1 kg
b. 1.3 kg
c. 10 kg
d. 13 kg

Hunter-Gatherers and the Paleo Diet

A Until agriculture was developed around 10,000 years ago, all humans got their food by hunting, gathering, and fishing. As farming began, the numbers of nomadic hunter-gatherers diminished as they were pushed off farmland. Eventually they became limited to the forests of the Amazon, the grasslands of Africa, the remote islands of Southeast Asia, and the tundra[1] of the Arctic. Today, only a few scattered tribes of hunter-gatherers remain on the planet and scientists are hoping to learn what they can about ancient diets before they disappear.

B So far, studies of tribes like the Tsimane in Bolivia, Arctic Inuit, and the Hadza people of Tanzania have found that these peoples traditionally don't develop high blood pressure, atherosclerosis, or cardiovascular disease. "A lot of people believe there is discordance between what we eat today and what our ancestors evolved to eat," says paleoanthropologist[2] Peter Ungar. The idea that we're trapped in Stone Age bodies in a fast-food world has resulted in the current enthusiasm for Paleolithic diets. The popularity of these so-called Stone Age diets is based on the idea that modern humans evolved to eat the way hunter-gatherers did during the Paleolithic period—the period from about 2.6 million years ago to the start of the agricultural revolution—and our genes haven't had time to adapt to farmed foods. In other words, we can't digest them properly.

C A Stone Age diet "is the one and only diet that ideally fits our genetic makeup," writes Loren Cordain, an evolutionary nutritionist. Cordain studied the diets of living hunter-gatherers. He came up with his own Paleo prescription: Eat plenty of lean meat and fish but not dairy products, beans, or cereal grain, because these foods were introduced into our diet after the invention of cooking and agriculture. Paleo-diet advocates like Cordain say that if we eat only the foods our hunter-gatherer ancestors once ate, we can avoid the diseases of civilization, such as heart disease, high blood pressure, diabetes, cancer, even acne.

D However, many paleontologists studying the fossils of our ancestors and anthropologists studying the diets of indigenous people point out that the real Paleolithic diet wasn't all meat. Hunter-gatherers around the world usually get around 30 percent of their annual calories from animals. But most also have times when they eat less than a handful of meat each week. Year-round observations show that hunter-gatherers often do not have success as hunters. The Hadza and Kung bushmen of Africa, for example, fail to get meat more than half the time when they hunt. In fact, no one eats meat all that often, except in the Arctic, where Inuit and other groups traditionally got as much as 99 percent of their calories from seals, narwhals,[3] and fish.

E So how do hunter-gatherers get energy when there's no meat? Well, "man the hunter" is helped by "woman the gatherer," who provides more calories during difficult times. When meat, fruit, or honey is not available, hunter-gatherers rely on plants and nuts, which are also integral to their diet. For example, the Hadza get almost 70 percent of their calories from plants.

F Many paleoanthropologists say that the modern Paleolithic diet's focus on meat doesn't reproduce the diversity of foods that our ancestors ate, or take into account the active lifestyles that protected them from heart disease and diabetes. "What bothers a lot of paleoanthropologists is that we actually didn't have just one caveman diet," says Leslie Aiello, president of the Wenner-Gren Foundation for Anthropological Research. "The human diet goes back at least two million years. We had a lot of cavemen out there."

G In other words, there is no one ideal human diet. Aiello and others agree that being human isn't about our taste for meat but our ability to adapt to many habitats, and to combine different foods to create many healthy diets.

The **tundra** is a vast, flat, and treeless region in which the ground is permanently frozen.

A **paleoanthropologist** is a person who studies the origins and ancestors of the present human species.

A **narwhal** is a small Arctic whale. The male has a long, spirally twisted tusk.

Source: Adapted from "The Evolution of Diet," by Ann Gibbons: NGM September 2014

Direction: Choose the best answer.

14. _____ The main idea of this passage can be found in paragraph A sentence ____.

a. 1
b. 2
c. 3
d. 4

15. _____ In the last sentence of paragraph B, them refers to ____

a. farmed foods
b. Stone Age diets
c. different kinds of meat
d. different periods in history

16. _____ Which of the following is NOT something that hunter-gatherers would eat?

a. meat
b. fish
c. milk
d. plants

17. _____ Which of the following is a theory, not a fact?

a. The Paleolithic period refers to a period of time that began about 2.6 million years ago.
b. Cordain is a nutritionist who studied the diets of hunter-gatherers who are alive today.
c. A diet similar to what people ate in the Stone Age can prevent many medical problems.
d. The Hadza people of Tanzania get almost 70 percent of their calories from plants.

18. _____Which statement best reflects the position of Aiello and other paleoanthropologists (paragraphs F–G)?

a. Humans are biologically designed to follow a single ideal diet rooted in the Paleolithic era.
b. Dietary health depends mainly on eliminating foods introduced by agriculture.
c. Human health is best explained by genetic limits on digesting farmed foods.
d. Human dietary success comes from flexibility and adaptation rather than a fixed "caveman diet."

II. Read each sentence carefully and choose the best word from the word bank (A–M) to complete the sentence. Write the letter of your answer on the scan sheet. Use each word only once. (3 points/per item, 30%)

[本大題於答案卷作答]

A. enriched	**B.** beneficial	**C.** triggered	**D.** resident	**E.** inclination
F. projected	**G.** notwithstanding	**H.** overcome	**I.** defiant	**J.** property
K. conventional	**L.** wellbeing	**M.** potential		

1. The bad weather _____ a lot of cancellations at the hotel. Nobody wanted to travel in the storm.
2. Teenagers are often _____. They don't always want to follow authority.
3. Olivia did very well in her job interview. She _____ confidence, and the interviewers were very impressed.
4. Traveling to new places has _____ my life. I have learned a lot about other cultures, and I've learned a lot about myself as well.
5. Phillip has never played team sports, but he has the _____ to be a great athlete.
6. The Williams sold their _____ in the country and bought an apartment downtown.
7. We should be basing our decisions on solid facts, not _____ and hunches.
8. _____ the tight deadline, the team delivered a thorough and well-supported report.
9. It's _____ to send a thank-you email after an interview, even if you already thanked them in person.
10. Despite repeated setbacks, the research team_____ methodological limitations through iterative redesign and rigorous validation.

III. Sentence Structure (4 points/per, 16%)

[本大題於答案卷作答]

(1) Combine the ideas into one sentence.
You may change the word forms, but do not change or omit any ideas.

1. The highest temperature on Earth was in El Azizia, Libya.
   The temperature was recorded.
   The temperature peaked at 136 degrees Fahrenheit.

   _____

2. The city of Pompeii had plumbing.
   The plumbing was extremely modern.
   The city was destroyed by a volcanic eruption.
   The eruption happened in AD 79.

   _____

(2) Unscramble the words and phrases to write complete sentences. Be sure to punctuate correctly.

3. is one of the/ of the 21st century/ of the driverless car/ most fascinating advancements/ the development

   _____

4. which is also known as the Hijri calendar/ the cycles of the moon/ the Islamic calendar/ is based on

_____

~End of the Question Sheet~