(2019年度)

3　英　語　問　題　(90分)

(この問題冊子は23ページ，5問である。)

受験についての注意

1. 試験監督者の指示があるまで，問題冊子を開いてはならない。
2. 試験開始前に，試験監督者から指示があったら，解答用紙の右上の番号が自分の受験番号と一致することを確認し，所定の欄に氏名を記入すること。次に，解答用紙の右側のミシン目にそって，きれいに折り曲げてから，受験番号と氏名が書かれた切片を切り離し，机上に置くこと。
3. 試験監督者から試験開始の指示があったら，この問題冊子が，上に記したページ数どおりそろっていることを確かめること。
4. 筆記具は，**HかFかHBの黒鉛筆またはシャープペンシル**に限る。万年筆・ボールペンなどを使用してはならない。時計に組み込まれたアラーム機能，計算機能，辞書機能を使用してはならない。また，スマートウォッチなどのウェアラブル端末を使用してはならない。
5. **解答は，解答用紙の各問の選択肢の中から正解と思うものを選んで，そのマーク欄をぬりつぶすこと。**
6. マークをするとき，マーク欄からはみ出したり，白い部分を残したり，文字や番号，○や×をつけたりしてはならない。また，マーク箇所以外の部分には何も書いてはならない。
7. 訂正する場合は，消しゴムでていねいに消すこと。**消しくずはきれいに取り除くこと。**
8. 解答用紙を折り曲げたり，破ったりしてはならない。
9. 試験監督者の許可なく試験時間中に退場してはならない。
10. 解答用紙を持ち帰ってはならない。
11. 問題冊子は必ず持ち帰ること。

1 次の一節は本の序文から取ったものである。以下の[1]～[7]のパラグラフに分けられた文章を読み，(1)～(14)の問いに対する答えとして最も適切なものを，それぞれ(a)～(d)から1つ選びなさい。なお，＊印のついた語句については下に注が与えられている。

[1] At this very moment, your brain is accomplishing an amazing feat—reading. Your eyes scan the page in short spasmodic* movements. Four or five times per second, your gaze stops just long enough to recognize one or two words. You are, of course, unaware of this jerky intake of information. Only the sounds and meanings of the words reach your conscious mind. But how can a few black marks on white paper projected onto your retina* evoke an entire universe?

[2] The reader's brain contains a complicated set of mechanisms admirably attuned to reading. For a great many centuries, this talent remained a mystery. Today, the brain's black box is cracked open (2) and a true science of reading is coming into being. Advances in psychology and neuroscience over the last twenty years have begun to unravel the principles underlying the brain's reading circuits. Modern brain imaging methods now reveal, in just a matter of minutes, the brain areas that activate when we decipher* written words. Scientists can track a printed word as it progresses from the retina through a chain of processing stages, each of which is marked by an elementary question: Are these letters? What do they look like? Are they a word? What does it sound like? How is it pronounced? What does it mean?

[3] On this empirical ground, a theory of reading is materializing. It postulates* that the brain circuitry* inherited from our primate evolution can be co-opted to (3) the task of recognizing printed words. According to this approach, our neuronal networks are literally "recycled" for reading. The insight into how literacy changes the brain is profoundly transforming

our vision of education and learning disabilities. New remediation* programs are being conceived that should, in time, cope with the debilitating incapacity to decipher words known as dyslexia.(4)

[4] My purpose in this book is to share my knowledge of recent and little-known advances in the science of reading. In the twenty-first century, the average person still has a better idea of how a car works than of the inner functioning of his own brain—a curious and shocking state of affairs.(5) Decision makers in our education systems swing back and forth with the changing winds(6) of pedagogical* reform, often blatantly ignoring how the brain actually learns to read. Parents, educators, and politicians often recognize that there is a gap between educational programs and the most up-to-date findings in neuroscience. But too frequently their idea of how this field can contribute to advances in education is only grounded in a few color pictures of the brain at work. Unfortunately, the imaging techniques that allow us to visualize brain activity are subtle and occasionally misleading. The new science of reading is so young and fast-moving that it is still relatively unknown outside the scientific community. My goal is to provide a simple introduction to this exciting field, and to increase awareness of the amazing capacities of our reading brains.

[5] Reading acquisition is a major step in child development. Many children initially struggle with reading, and surveys indicate that about one adult in ten fails to master even the rudiments of text comprehension. Years of hard work are needed before the clockwork-like(8) brain machinery that supports reading runs so smoothly that we forget it exists.

[6] Why is reading so difficult to master? What profound alterations in brain circuitry accompany the acquisition of reading? Are some teaching strategies better adapted to the child's brain than others? What scientific reasons, if any, explain why phonics—the systematic teaching of letter-to-sound correspondences—seems to work better than whole-word teaching?

Although much still remains to be discovered, the new science of reading is now providing increasingly precise answers to all these questions. In particular, it(10) underlines why early research on reading erroneously supported the whole-word approach—and how recent research on the brain's reading networks proves it(11) was wrong.

[7] Understanding what goes into reading also sheds light on its pathologies. In our explorations of the reader's mind and brain, you will be introduced to patients who suddenly lost the ability to read following a stroke. I will also analyze the causes of dyslexia, whose cerebral underpinnings(12) are gradually coming to light. It is now clear that the dyslexic brain is subtly different from the brain of a normal reader. Several dyslexia susceptibility* genes have been identified. But this is by no means a reason for discouragement or resignation. New intervention therapies are now being defined. Intensive retraining of language and reading circuits has brought about major improvements in children's brains that can readily be tracked with brain imaging.

出典：Stanislas Dehaene, *Reading in the Brain: The Science and Evolution of a Human Invention* (New York: Penguin, 2009). pp. 1-3. (一部改変)

〈注〉

spasmodic: 断続的な

retina: 網膜

decipher: 判読する

postulate: 前提とする

circuitry: 回路構成

remediation: 治療

pedagogical: 教育の

susceptibility: なりやすい

[1]について

(1) If paragraph 1 had its own title, which of the following would be the best?

(a) "The Complexity of Reading"

(b) "The Ease of Reading"

(c) "The Tedium of Reading"

(d) "The Anxiety of Reading"

[2]について

(2) Which of the following best replaces the underlined phrase, "the brain's black box is cracked open"?

(a) People read much less than before.

(b) We have more brain injuries than in the past.

(c) New surgical techniques have been developed.

(d) What was unavailable is now available.

[3]について

(3) Which of the following best replaces "co-opted to"?

(a) reshuffled for

(b) rebuilt for

(c) recalled to

(d) repurposed to

(4) "Dyslexia" is a type of _____.

(a) learning disability

(b) brain circuitry

(c) remediation program

(d) neuronal network

[4]について

(5) Which of the following claims may refer to "a curious and shocking state of affairs"?

(a) On average, people know little about human biology, even though they live in a technologically advanced society.

(b) On average, people are poorly educated, including about science.

(c) On average, people are equally knowledgeable about both common technology and their own bodies.

(d) On average, people do not use advanced technology and are ignorant of their own bodies.

(6) What does "changing winds" mean?

(a) hostility

(b) burden

(c) stupidity

(d) unpredictability

(7) Which of the following does NOT figure in the author's motivations to write this book?

(a) Current imaging techniques produce results that are difficult to read.

(b) Stakeholders in educational policy are aware of the latest and the most relevant scientific research.

(c) The average person prefers to read automotive manuals rather than scientific research.

(d) The reasons behind educational reform are not certain.

[5]について

(8) What does "clockwork-like" mean?

(a) elastic

(b) irregular

(c) patient

(d) reliable

(9) Which of the following is NOT true?

(a) Learning to read is important for a child's development.

(b) We are aware of the difficulties inherent in reading, but eventually take reading for granted.

(c) We forget about the difficulties inherent in reading as our brains age.

(d) We learn to read when our brains get older.

[6]について

(10) In the last sentence of paragraph 6, the FIRST "it" refers to _____.

(a) the new science of reading

(b) whole-word teaching

(c) letter-to-sound teaching

(d) (a) and (c)

(11) In the last sentence of paragraph 6, the SECOND "it" refers to _____.

(a) the new science of reading

(b) whole-word teaching

(c) letter-to-sound teaching

(d) (a) and (c)

[7]について

(12) Which word best replaces "underpinnings"?

(a) foundations

(b) ideas

(c) forms

(d) preconditions

(13) According to paragraph 7, given the new science of reading, how does the author feel about the prospects of healing innovation?

(a) cautiously optimistic

(b) regrettably pessimistic

(c) surprisingly neutral

(d) thoroughly resigned

[1]～[7]について

(14) According to these paragraphs, "the new science of reading" is _____.

(a) being developed

(b) not practical

(c) reappearing

(d) redundant

2 以下の[1]～[12]のパラグラフに分けられた文章を読み，(15)～(30)の問いに対する答えとして最も適切なものを，それぞれ(a)～(d)から1つ選びなさい。なお，＊印のついた語句については下に注が与えられている。

[1] It's a great time to be a bacterium. For more than a century, bacteria have been typecast as villainous* bodily invaders in the stomach-churning*, fever-inducing drama of infectious disease. Now, researchers

are realizing that bacteria can play the good guys, too.

[2] Beneficial gut bacteria—and there are trillions of them in the typical human digestive system—help digest and extract nutrients* from everything we eat, and they can also crowd out (16) the bad-guy bacteria that make us sick.

[3] That's the big idea (18) behind the shelf full of "probiotic" supplements at your local pharmacy or grocery store. Manufacturers claim that these pills (or gummies or powdered drink packets) contain billions of live bacteria. Some doctors recommend that patients take them when they are prescribed broad-spectrum antibiotics (19), which wipe out good and bad bacteria alike, and millions of consumers buy them (20) hoping for relief from gastrointestinal* problems or to support general good health. But do the supplements actually contain what the labels promise, and how do they compare to fermented foods, like kombucha or miso soup, which are also teeming with microbes*?

[4] Sandra Buerger at Boston University's College of General Studies, and Alexander Smith, supported by a grant from the Center for Interdisciplinary Teaching & Learning, wanted to find out. So, they headed to the drugstore, filled up their shopping baskets, and brought their probiotic haul back to Buerger's lab. There, they cracked open the pills, diluted* the bacterial powder stuffed inside, and dabbed* the mix onto petri dishes*. Because the probiotic pill bottles specify what bacterial strains are inside, Buerger and Smith prepared the dishes according to those species' preferences. Then they waited to see what would grow.

[5] So far, their preliminary results, which they hope to publish in the future, (23) ( ) fairly well with what's advertised on the pill bottles. "The numbers from our methods have been a little lower than what's claimed on the box," says Buerger, "but there are definitely living bacteria in there."

[6] Still, says Buerger, from a bacterium's perspective, the conditions inside the pill are less than ideal. "They are being shoved into a little pill capsule, and they might be happier in (24) some of the other liquids, where they have more room to grow."

[7] To find out whether bacteria were "happier" elsewhere, Buerger decided to test the pills against popular fermented drinks that naturally contain good bacteria. She started with miso soup and apple cider vinegar, then added kombucha, a fermented tea, at the suggestion of a friend who home-brews the drink. Then, Smith repeated the process of plating the samples and growing the bacteria.

[8] The results looked very different from the over-the-counter* probiotics, says Smith. While the bacteria from the pills colonized in tidy white circles, the dishes plated with fermented foods bloomed in colorful, disorderly splotches*. Buerger and Smith will use gene sequencing to identify the specific strains of bacteria inside the fermented foods, but they say it's already clear that the foods have greater bacterial diversity than the over-the-counter probiotics.

[9] That diversity makes it tough for consumers to know exactly what they are getting when they tuck into* their miso soup, and also introduces the danger of contamination. But, Buerger says, it might give fermented foods an edge (27) over the more homogeneous drugstore probiotics. "A healthy collection of gut bacteria is not one type of bacteria. It's many types of bacteria, so there could be potential health benefits of having more variety," she says. It's also possible that the diversity could help the bacteria thrive. "Bacteria interact with each other all the time. Some of those relationships are antagonistic, but other times they talk to each other and cooperate."

[10] The next step is finding out whether all those bacteria actually make it through the digestive system to the small intestine. "What we're really

concerned about is how they survive the trip through the stomach," says Buerger. "The stomach doesn't have a lot of bacteria in it because it has this high acidity level*. But once the food travels through your intestines, that's where the bacteria are going to be able to have the most action." There, bacteria help the body produce vitamins, break down foods, and keep "bad" bacteria, like those that cause food poisoning, from moving in.

[11] Buerger and Smith are building an artificial stomach that will "digest" the probiotic pills by churning them up with hydrochloric acid, potassium chloride*, and sodium chloride, the main components of the gastric juice that helps break down food in the stomach.

[12] Buerger hopes the research will help doctors and consumers make more informed choices about over-the-counter and food-based probiotics.

出典：Kate Becker, "Gut Check: Researchers Test the Probiotics in Food and Supplements" (*Bostonia*, Winter-Spring 2018). pp. 24-25. (一部改変)

〈注〉

villainous: 悪性の

stomach-churning: 胃を激しくかき回す

nutrient: 栄養素

gastrointestinal: 胃腸の

microbe: 微生物

dilute: 薄める

dab: 軽く置く

petri dish: 細菌培養皿

over-the-counter: 店頭の

splotch: 斑点

tuck into: 腹に詰め込む

acidity level: 酸度

chloride: 塩化物

[1]について

(15) According to paragraph 1, which of the following statements is true?

(a) For many years, bacteria were thought to be unhealthy.

(b) For many years, some foods were wrongly typecast as villainous.

(c) For many years, medicine was used to kill only the bad bacteria.

(d) For many years, supplements were used to boost a broad spectrum of bacteria.

[2]について

(16) In paragraph 2, which word is closest in meaning to "crowd out"?

(a) cover

(b) displace

(c) substitute

(d) switch

(17) According to paragraph 2, which one of the following is NOT true?

(a) Bacteria help our digestive organs to process food.

(b) Some kinds of bacteria are healthier than others.

(c) The bacteria in our digestive tract carry no significant health implications.

(d) Under normal circumstances, people have lots of bacteria.

[2]～[3]について

(18) In paragraphs 2 and 3, "the big idea" does NOT imply that _____.

(a) consumers try to change their ratio of different kinds of bacteria via food supplements

(b) some kinds of bacteria are healthier than others

(c) fermented foods make a large profit for grocery stores

(d) there are different kinds of bacteria

[3]について

(19) In paragraph 3, "broad-spectrum antibiotics" means antibiotics that kill bacteria _____.

(a) related to infectious disease

(b) that cause fever

(c) that have been ingested

(d) without discrimination

(20) In paragraph 3, "them" refers to _____.

(a) "probiotic" supplements

(b) broad-spectrum antibiotics

(c) good and bad bacteria

(d) vitamins

[3]～[4]について

(21) In paragraphs 3 and 4, what question do the researchers want to answer?

(a) How do broad spectrum antibiotics compare to ones that are more selective?

(b) How do supplements compare to fermented foods?

(c) Which stores sell the most reliable supplements?

(d) Which strains of bacteria are the healthiest?

[4]について

(22) According to paragraph 4, what did the researchers NOT do, in order to answer their research questions?

(a) They accessed the contents of probiotic products.

(b) They cleaned petri dishes.

(c) They read supplement bottles.

(d) They visited the drugstore.

[5]について

(23) In paragraph 5, which of the words below best fills the blank space (　　)?

(a) contrast

(b) face

(c) agree

(d) dispense

[6]について

(24) In paragraph 6, what does "happier in" mean?

(a) better suited to

(b) more excited by

(c) less acclimated to

(d) less saddened by

[7]～[8]について

(25) The experiment involving the pills and fermented foods did NOT reveal that _____.

(a) the bacteria from the pills were more uniform than those of the fermented foods

(b) both the pills and the fermented foods bloomed in bacteria

(c) the fermented foods revealed more bacterial diversity than the pills

(d) both the pills and the fermented foods revealed live bacteria

[9]について

(26) As explained in paragraph 9, why might probiotics be better?

(a) Bacterial variety is unhealthy.

(b) Fermented foods run the risk of contamination.

(c) Many consumers dislike the taste of fermented foods.

(d) None of the above.

[6]～[9]について

(27) What gives fermented foods "an edge" over drugstore supplements?

(a) They are associated with pleasant memories.

(b) They are common to every culture.

(c) They are not stored in a warehouse for long periods.

(d) They produce greater bacterial diversity.

[9]～[10]について

(28) Which of the following is NOT true, according to the text?

(a) High acidity levels kill bacteria.

(b) Some bacteria communicate with other bacteria.

(c) The intestines have higher acidity levels than the stomach.

(d) The acidity levels of intestines are lower than that of the stomach.

[10]～[11]について

(29) Why are the scientists building an artificial stomach?

(a) To attract investors for a new "probiotic" product

(b) To determine if bacteria survive until the small intestine

(c) To find new ways to package pills

(d) To test the acidity level of the stomach

[1]～[12]について

(30) The main point of this article is to tell the story of how _____.

(a) a few scientists tested the claims of commercial "probiotic" supplements

(b) bacteria are necessary for good human health

(c) broad-spectrum antibiotics wipe out both good and bad bacteria

(d) fermented foods are beneficial for digestion

3 次の各文の空所を埋めるのにもっともふさわしい語句を，(a)～(d)から1つ選びなさい。

(31) The migrants to North America came in small groups that ranged far and wide (　　) the grazing herds of large, hairy mammals including wooly mammoths.

(a) for investigating into　　(b) in pursuit of

(c) to charm　　(d) to find out

(32) A second wave of migrants followed about 9,000 years ago and migrated to the American Southwest, where they (　　) Apache and Navajo.

(a) became known as　　(b) came to see as

(c) had gone to　　(d) made up of

(33) A third wave of migrants arrived about 5,000 years ago, when the ancestors of the Inuit settled the Arctic coast of North America ( ) islands south and west of Alaska.

(a) although some others placed
(b) during the other groups reached
(c) meantime some positioned
(d) while others occupied

(34) Offering high value per volume, furs were an ideal colonial commodity that, like gold and silver, could ( ) their transatlantic transportation.

(a) enough to provide with
(b) mostly meet with
(c) more than pay for
(d) sufficiently need for

(35) ( ) furs, the mariners offered European manufactured goods, especially beads, kettles, hatchets, and knives.

(a) As the way of
(b) In exchange for
(c) In spite of
(d) In transfer with

(36) As the fur trade grew more competitive, traders recognized the profits ( ) the Indians wanted most.

(a) by selling into
(b) for selling that
(c) in selling what
(d) to sell for

(37) John Bunyan, "the artist-philosopher," ( ) surprised himself as well as centuries of critics when he wrote *The Pilgrim's Progress*, first published in 1678.

(a) has been to
(b) has to be
(c) seemed to have
(d) very likely to have

(38) Born in 1628 in the village of Elstow in Bedfordshire, the son of a brazier or tinker, Bunyan (　　) formal education.

(a) had bit　　(b) had little

(c) received slightly　　(d) received small

(39) Twelve editions of *The Pilgrim's Progress* had appeared before Bunyan's death in 1688, and it (　　) into over two hundred different languages and dialects.

(a) being translated　　(b) had a translation

(c) had translated　　(d) has been translated

(40) Bunyan volumes became treasured family possessions and (　　) several generations.

(a) had transferred for　　(b) has inherited by

(c) was handed on to　　(d) were passed down across

4 以下の英文中の下線部の意味にもっとも近いものをそれぞれ(a)～(d)から1つ選びなさい。

(41) The Japanese government sent a team of scholars to New York to look into forging a new relationship with the United Nations.

(a) examine　(b) protest　(c) see　(d) seek

(42) The Gulf of Mexico is one of the world's most ecologically diverse bodies of water, home to more than 15,000 marine species.

(a) animals　(b) container　(c) expanses　(d) flesh

(43) In every field of science, it is difficult to predict the future, because geniuses always <u>come along</u> with ideas that nobody of our generation has had.

(a) bring (b) disagree (c) emerge (d) part

(44) It was perhaps half an hour into this <u>portion</u> of the evening when I was finally introduced to the guest of honor at this event.

(a) climax (b) amount (c) fortune (d) part

(45) I am not sure how much of my memory of that night derives from what I witnessed and to what extent it has merged with my mother's <u>accounts</u> of the episode.

(a) activity (b) description (c) importance (d) participation

(46) Picasso's paintings are <u>haunting</u> because the women in them, for instance, are so strangely observed that there is something humorous and disturbing at once.

(a) crazy (b) charming
(c) unforgettable (d) ugly

(47) One organization of linguists is working to keep languages alive by <u>highlighting</u> what gets lost when they fade away.

(a) emphasizing (b) saving (c) searching (d) specializing

(48) After a long trip to the wildest part of the desert, my spirit remained <u>sound</u>, but in no way was it illuminated or healed.

(a) insensitive (b) loud (c) quiet (d) undamaged

(49) You might expect that the people most at risk are those living in a remote area, but that is <u>not the case</u>.

(a) impolite (b) intuitive (c) unbelievable (d) untrue

(50) The Bengal tiger is <u>on the brink of</u> extinction, but conservation efforts are bringing it back.

(a) in a different class from (b) in point of

(c) in the event of (d) on the verge of

5 以下の日本語の文に相当するように与えられた語を一回ずつ使って英文中の空所を埋めた時，＊印の箇所に入る語を選びなさい。なお，文頭に来る単語も小文字で記している。

(51) その少女は目を合わせ，会話でも交互に喋る——精神疾患をもつ人々は一般に苦労すると言われることだ。

The girl makes eye contact and takes turns in conversation—things people with some mental disability are generally (　　)(　＊　)(　　)(　　)(　　).

(a) doing (b) have

(c) known (d) to

(e) trouble

(52) 一平方マイルに人口密度およそ250人なので，カリフォルニアはオオカミにとっては住み処を探すにはふさわしくないかもしれない。

(*)( )( )( ) of almost 250 people per square mile, California might seem an unlikely choice for wolves in search of a home.

(a) an
(b) average
(c) density
(d) population
(e) with

(53) 北極は世界のどこと比べても温暖化が二倍の速度で進んでいて，そんなことが起こる現実にわれわれは恐れをいだいた。

The Arctic has been warming more than twice as fast as anywhere else in the world, and ( )( )(*)( )( )( ) made us terrified.

(a) happening
(b) of
(c) reality
(d) the
(e) was
(f) what

(54) 私は彼を慰めようとしたが，何を言っていいか途方にくれて，頭に浮かぶことばかりを話しつづけていた。

I wanted to comfort him, but ( )( )( )( )(*) ( ) to say, I just kept talking about whatever came into my head.

(a) a
(b) anything
(c) at
(d) being
(e) for
(f) loss

(55) その日，スミス氏の近くにいる間ずっと，彼の態度にますます我慢できなくなっていった。

For much of the (　　)(　　)(*)(　　)(　　)(　　) that day, I was growing increasingly impatient with Mr. Smith's attitude.

(a) company　　(b) his

(c) I　　(d) in

(e) time　　(f) was

(56) 私を圧倒するほどの脅威を与えた混乱の元にあるものを見つけるのに数日もかかった。

It took me several days to find (　　)(　　)(*)(　　)(　　) of the confusion which threatened to overwhelm me.

(a) at　　(b) lay

(c) root　　(d) the

(e) what

(57) 私をある方向へと着実に導くよう長いこと積み重なった多くのできごとがあった。

There were a number of incidents which built (　　)(*)(　　)(　　)(　　)(　　) to push me steadily in a certain direction.

(a) a　　(b) of

(c) over　　(d) period

(e) time　　(f) up

(58) 旧友についに再会して，初めてある種の興奮を覚えた。

I felt for the first time a kind of excitement at (　　)(　　)(　　)(　＊　)(　　) old friend.

(a) being　　(b) finally

(c) my　　(d) reunited

(e) with

(59) どの言語も，一定の時間と地理を経て発展してきて，いわゆる場所の感覚を表明するものだ。

Each language, developed over a certain time and geography, is a revelation of (　　)(　　)(　　)(　　)(　＊　)(　　) place.

(a) a　　(b) call

(c) of　　(d) sense

(e) we　　(f) what

(60) 人類学を社会科学あるいは行動科学と呼ぶ人もいれば，自然科学と呼ぶ人もおり，またさらに他の人々には人文学の一種と言われる。

Anthropology has been called a social or behavioral science by some, a natural science by others, and still (　　)(　　)(　　)(　＊　)(　　) others.

(a) a　　(b) by

(c) humanities　　(d) kind

(e) of