

英語問題

(試験時間 13 : 30 ~ 14 : 30)

受験についての注意

1. 試験開始の合図があるまで、この問題冊子を開いてはならない。
2. この問題冊子は 14 ページある。
3. 試験中に問題冊子のページの脱落等に気付いた場合は、手をあげて監督者に知らせること。
4. 解答用紙に受験番号を記入し、マーク欄にマークすること。また、氏名とふりがなを記入すること。
5. 解答はすべて解答用紙にマークすること。解答用紙を折り曲げたり、破ったり、汚したりしないこと。
6. 解答用紙への記入には必ず **HB の黒鉛筆** を用いること。シャープペンシルなど他の筆記用具を用いると、正確に読み取れない場合がある。
7. 解答にあたっては、解答用紙の該当する箇所を
右に示す例に従ってぬりつぶすこと。
例えば b にマークするときは、次のように
①●●②とする。
8. 一度記入したマークを消す場合には、消しゴムできれいに消すこと。
×をつけても消したことにはならない。また消しゴムのくずを完全に取り除いておくこと。
9. 解答用紙の指定された場所以外には何も書いてはならない。
10. 辞書機能、翻訳機能をもつものを使用してはならない。
11. 携帯電話の電源は切っておくこと。身につけたり机の上に置いたりしてはならない。
12. この問題冊子は試験終了後持ち帰ること。

例

良	不良
●	● ⊗ ●

1 次の(1)～(5)の下線部(a)～(e)のうち、それぞれ1カ所に文法上の誤りがある。誤りを含む下線部の記号をそれぞれ解答欄1～5にマークしなさい。

(1) (a) Language is the principal means (b) by which we lead our social lives.
(c) When it is using in contexts of communication, (d) it is connected with culture
(e) in multiple and complex ways.

(2) (a) To begin with, the words people use (b) refer to common experience.
(c) They express facts, ideas or events that are communicable (d) because they refer
to a stock of knowledge (e) about the world that other people live.

(3) (a) Words also reflect their authors' attitudes and beliefs, their point of view,
(b) that are also that of others. (c) In both cases, language expresses cultural reality.
(d) But members of a community or social group do not only express experience;
(e) they also create experience through language.

(4) (a) They give meaning it (b) through the medium they choose to communicate
with one another, (c) for example, speaking on the telephone or face-to-face,
(d) writing a letter or sending an e-mail message, (e) reading the newspaper or
interpreting a graph or a chart.

(5) (a) The way in which people use the spoken, written, or visual medium
itself (b) create meanings that are understandable to the group they belong to,
(c) for example, through a speaker's tone of voice, accent, conversational style,
gestures and facial expressions. (d) Through all its verbal and non-verbal aspects,
(e) language embodies cultural reality.

(メモ用紙)

2 第二次世界大戦中に行われた飢餓が人体に及ぼす影響を調べた研究をふりかえって、その内容を英語で発表しようと思う。文中の空欄（ 1 ）から（ 3 ）には、それぞれ以下の内容を表す英文を入れようと考えている。最も適切な英文を a～e からそれぞれ1つ選び、解答欄1～3にマークしなさい。

- (1) 戦争で荒れた地域において飢餓に苦しむ人々への対処法を見出すために、この研究は行われた。
- (2) この後6カ月の「準飢餓期」に入った。
- (3) この研究によって飢餓が肉体的及び精神的問題を引き起こしうることが示された。

During World War II, 36 healthy American men participated in a study of human hunger conducted at the University of Minnesota. (1) The study had three stages. The first was a “standardization” period of three months in which the men received up to 3,200 kcal of food per day. (2) In this stage, their daily energy intake was decreased to 1,800 kcal. The final three months were a nutritional rehabilitation period. During the second and third stages, the participants reported not only tiredness, but also mental confusion, irritation and depression. (3)

1.
 - a. The study was conducted to learn how to deal with starving people in areas ruined by the war.
 - b. The purpose of the study was learning to treat starving people in areas torn apart by the war.
 - c. How to react with people starving in areas destroyed by the war was learned in the study.
 - d. This study learned how to treat people who are starving in areas destructed by the war.
 - e. We learned to deal with starving people in areas damaged by the war in this study.

2.

- a. Following this, a six-month “semi-starvation period” entered.
- b. After this, they moved in a six-month “semi-starvation period.”
- c. A “semi-starvation period” of six months happened continuously after this.
- d. This was followed by a six-month “semi-starvation period.”
- e. Next, they started a “semi-starvation period” for six months.

3.

- a. The research was shown that hunger may cause physical and psychological problems.
- b. The research is that hunger is probably both physical and psychological problems.
- c. The study proved the possibility that hunger gets physical and psychological problems.
- d. Hunger possibly brings about physical and psychological problems was pointed by this study.
- e. The study showed that hunger can result in physical and psychological problems.

3 Read the following conversation and answer the questions by marking the most appropriate answer choice.

Yumiko : What are you doing?

Sam : I'm watching a really interesting video about kids growing up digital.

Yumiko : _____ (1) _____ "growing up digital"?

Sam : You know, kids like us who grew up with technology—cell phones, computers, video games, Internet.

Yumiko : (2) Oh, yeah, that's me. What does the video say about it?

Sam : Well, it says that some American kids today are getting so much stimuli that it's difficult for them to focus and learn. _____ (3A) _____ ?

Yumiko : I'm not sure. Tell me a little more about it.

Sam : See this high school girl, here, in the video? She sends about 27,000 text messages every month.

Yumiko : That's 900 a day! _____ (4) _____ ! How does she have time for school and homework?

Sam : That's the problem, she doesn't. Every time a text message arrives while she's doing homework, she stops to read it immediately.

Yumiko : (5) Oh, and then, she probably loses her place and has to start all over again.

Sam : That's right. So, you still haven't answered my question. _____ (3B) _____ ?

Yumiko : Yeah, maybe. If I use the Internet to look up something for a school report, other websites can (6) distract me pretty easily. I have to be careful or I start watching videos on YouTube.

Sam : Me, too.

Yumiko : I guess Japanese kids and American kids aren't so different.

1. Which of the following fits gap (1) the best?
 - a. How do you spell
 - b. Where can you watch
 - c. What is it about
 - d. What do you mean by
 - e. Why did you say

2. What can we understand from the underlined part (2)?
 - a. Yumiko's parents did not want her to use technology.
 - b. Yumiko is digital.
 - c. Yumiko used digital technology in her childhood.
 - d. Yumiko likes technology.
 - e. Yumiko doesn't have any digital technology.

3. Which question does NOT fit gaps (3A) and (3B)?
 - a. Do Japanese students have the same problem?
 - b. Is it the same in Japan?
 - c. Do you have difficulty focusing?
 - d. Do you like technology?
 - e. Does technology make it difficult for you to study?

4. What expression fits gap (4) the best?

- a. Why not
- b. That's crazy
- c. How come
- d. I understand
- e. So what

5. What does the underlined part (5) mean?

- a. The girl forgets what she was doing, and must begin again.
- b. The girl gets a bad grade and must repeat the whole school year.
- c. The girl can't remember who she was emailing and has to start again.
- d. The girl gets lost on her way home from school because she is so busy texting.
- e. The girl loses her cell phone and needs to buy another one.

6. What is the best definition of the underlined word (6)?

- a. unable to pay attention because you are worried and thinking about something else
- b. a thing that takes your attention away from what you're doing or thinking about
- c. to take somebody's attention away from what they are trying to do
- d. an activity that entertains you so that you become upset, excited, or angry and not able to think clearly
- e. extremely upset and anxious so that you cannot think clearly

(メモ用紙)

4 次の文を読み、問1～問3に答えなさい。

During the winter of 2006-2007, some beekeepers began to report unusually high losses of 30-90 percent of their beehives. It is a mysterious and sudden disappearance of honeybees. This phenomenon, which currently does not have a recognizable underlying cause, has been ⁽¹⁾christened "Colony Collapse Disorder" (CCD). The main symptom of CCD is simply no or a low number of adult worker bees present but with a live queen and no dead honeybees in the beehive. There is still honey in the beehive, and immature bees are present.

An interesting report of what is happening inside honeybees during CCD has been published recently. Scientists in the United States Department of Agriculture and the University of Illinois measured differences in expression levels of more than 9,000 genes in the guts of worker bees from CCD and healthy bee colonies. The gut is the primary entry point for pesticides, a kind of agricultural chemical, and pathogens such as bacteria and viruses in honeybees. The scientists found that unusual ribosomal RNA (rRNA) fragments were ⁽²⁾conspicuously more abundant in the guts of honeybees in CCD colonies. Ribosomes are where proteins are made, and rRNA is a major component of ribosomes. The abundance of the unusual rRNA suggests the bees' ⁽³⁾ribosomes are compromised. This means that honeybees in CCD colonies have reduced ability to make new proteins.

Genes for stress response systems were also measured. (a) The honeybee has two response systems: one to pathogens and a different one to environmental stresses such as pesticides. (b) Unexpectedly, the genes involved in the pathogen/immune response systems were mostly unchanged in expression in CCD bees. (c) The study has not yet established a direct cause-and-effect link between the unusual rRNA fragments and CCD. (d) Although any interpretation of the presence of unusual rRNA fragments is speculative, honeybees' reduced ability to make protein would leave them unable to respond to additional stresses from pesticides, pathogens, or poor nutrition. (e)

注) colony 群体； expression level 発現量； the gut 消化管； pesticide 殺虫剤；
pathogen 病原体； fragment 断片； immune 免疫

問1. 下線部(1)～(3)の意味に最も近いものをそれぞれa～fから1つ選び、その記号を解答欄1～3にマークしなさい。

- (1) a. asked b. discovered c. explained
d. found e. studied f. termed
- (2) a. comparably b. constantly c. doubtlessly
d. obviously e. probably f. unfortunately
- (3) a. ribosomes are abundant b. ribosomes are activated
c. ribosomes are damaged d. ribosomes are finished
e. ribosomes are improved f. ribosomes are predominant

問2. 以下の文は本文中の (a) ～ (e) のいずれかに入っていたものである。その箇所として最も適切な箇所の記号を解答欄4にマークしなさい。

Similarly, elevated expression of pesticide response genes was not observed in the guts of honeybees from CCD colonies.

問3. 以下のa～fのうち、本文の内容に合致するものを3つ選び、その記号を解答欄5にマークしなさい。

- a. CCD is a syndrome characterized by the sudden disappearance of all or almost all adult honeybees in a beehive, while the queen, immature bees and honey remain.
- b. Since little is known about the cause of CCD right now, transportation of honeybees by beekeepers has been temporarily stopped.
- c. CCD has created a serious problem in fruit production because honeybees are used to carry pollen from flower to flower.
- d. The scientists have identified a causal gene for CCD and clearly explained many of the phenomena associated with CCD.
- e. We could speculate that the reduced ribosomal function, which may be caused by abundant unusual rRNA fragments, is suggestive of a possible root cause of CCD.
- f. The scientists compared gut gene expression between healthy honeybees and those from CCD colonies.

5 次の文を読み、問1～問5に答えなさい。

Animals have developed various patterns of drinking behavior depending on physiological and environmental limitations. Some animals use their tongue to drink; the most common example is the lapping of cats and dogs. Dogs put their tongues into water, scoop the water and drink it. Unlike dogs, ⁽¹⁾cats' drinking behavior had not been studied until recently. Cats lap water so fast that the human eye cannot follow what is happening, which is why the process had probably escaped attention. A group of scientists performed a study to find out how cats actually drink water from a bowl using high-speed videos, which revealed the strange technique and delicate balance of physical forces cats use to lap liquid from a bowl.

At first, the researchers assumed that the hairs on a cat's tongue must be involved in drawing water into its mouth. But the tip of the tongue, which is smooth, turned out to be all that was needed. What happens is that the cat moves its tongue, curving the upper side downward so that the tip lightly touches the surface of the water. The tongue is then pulled upward at high speed, drawing a ⁽²⁾column of water behind it. The cat closes his mouth and pinches off the top of the column at just the right second to get the most liquid possible, while keeping his chin dry.

The columns are created by a balance between two forces: gravity, which pulls the liquid (3A) toward the Earth, and inertia, the tendency of a moving object to keep moving unless something stops it. Initially, inertia is more powerful than gravity, and the column rises with the cat's tongue. But eventually gravity starts to take over, and the column begins to fall (3B) down toward the bowl. The cat's tongue moves as quickly as about 78 centimeters per second, and the cat laps between three and four times a second, drinking about 0.14 milliliters of water per lap.

The researchers built a model cat tongue in the laboratory, using a glass disk placed on the water and a special device to pull the disk up very quickly. They observed how quickly the volume of the water column changed using a high-speed video camera. Their results confirmed that the cat laps when the volume of the

column is the largest, which is when inertia and gravity just balance.

They then applied their experiment to big cats such as lions, leopards, and tigers. Based on the earlier results, the researchers expected cats' lapping speeds to slow down with the cats' mass. For this, they worked out a formula: the lapping frequency should be the weight of the cat species, raised to the power of minus one-sixth and multiplied by 4.6. They then videotaped big cats and found that big cats lapped at the speeds predicted by the researchers. Their results show that cats of all sizes seem to know exactly when the column is about to give in to gravity, and they pinch it off right then.

問 1. 下線部 (1) の理由として最もふさわしいものを a ~ e から 1 つ選び, 解答欄 1 にマークしなさい.

- a. Training cats has been very difficult for scientists.
- b. Cats do not usually show their technique for drinking when humans are around.
- c. The way cats move their tongues is too fast for humans to see with the naked eye.
- d. Cats do not drink as much liquid as dogs, so cats' drinking behavior is less interesting.
- e. High-speed video cameras were not available for research until recently.

問 2. 下線部 (2) の文中での意味として最もふさわしいものを a ~ e から 1 つ選び, 解答欄 2 にマークしなさい.

- a. a section that is always written by the same person
- b. a vertical arrangement of items printed on a page
- c. a tall decorated cylinder of stone
- d. a statistical category or grouping
- e. a shape that is tall and narrow from top to bottom

問3. 本文中の空欄(3A)と(3B)には同じものが入る。入れるのに最も適切な語を a～e から1つ選び、解答欄3にマークしなさい。

- a. after
- b. back
- c. in
- d. off
- e. up

問4. この実験で、ネコは舌の動きによって引き上げられた液体をタイミングよく飲むことが分かった。この実験のネコが1秒間に飲む液体の量はおおよそどのくらいか。正しいものを a～e から1つ選び、解答欄4にマークしなさい。

- a. 0.14 ml ～ 0.35 ml
- b. 0.42 ml ～ 0.56 ml
- c. 0.35 ml
- d. 0.35 ml ～ 0.56 ml
- e. 0.14 ml

問5. 次の a～e のうち本文の内容に合致しないものを1つ選び、解答欄5にマークしなさい。

- a. As far as the cat family is concerned, the larger the animal, the slower it laps when it drinks liquid from a bowl.
- b. The same formula can be used to predict the speed and the frequency of lapping of different species in the cat family.
- c. The researchers confirmed that lions and leopards drink water essentially the same way as house cats do.
- d. The hairy part of the tongue draws water from a bowl to the cat's mouth.
- e. Cats do not usually get their faces wet when they drink water from a bowl.