

平成31年度入学試験問題

英 語

注 意

- 1 問題冊子は1冊（11ページ）、解答用紙は4枚です。
- 2 試験中に問題冊子の印刷不鮮明、ページの落丁・乱丁及び解答用紙の汚れ等により解答できない場合は、手を高く挙げて監督者に知らせなさい。
- 3 すべての解答用紙に、それぞれ2箇所受験番号を記入しなさい。
- 4 解答は、すべて解答用紙の指定されたところに書きなさい。
- 5 試験終了後、問題冊子は必ず持ち帰りなさい。

問 1 次の英文を読んで、下の設問に答えなさい。

The following article discusses two aspects of teenage development

1. I'm so embarrassed

Adolescence¹ is often the first time we give much thought to how our identity affects our lives and the ways in which others see us. A basic sense of self develops very early on in life, but it is during adolescence that our sense of self becomes particularly important to us. We imagine how we appear to other people and how they will judge us, and this sense of self—sometimes called the looking-glass self—might induce feelings of contentment, embarrassment, pride, shame or guilt.

One of my friends with teenage daughters told me that the most striking change he noticed in them around puberty² was in their levels of embarrassment, especially embarrassment caused by their parents. Before puberty, if they were misbehaving in the supermarket, all he had to do was to promise to sing their favorite song in reward and they would instantly behave. After puberty, the same promise became a threat.

The term “imaginary audience” was coined by the psychologist David Elkind in the 1960s. It describes the phenomenon whereby adolescents imagine that other people are constantly observing and evaluating them, even if this is not actually the case. Picture a 14-year-old girl not wanting to play board games with her parents and brothers and sisters because she knows her friends would think it is uncool—even though no one is watching her.

Many social-media sites have been designed to appeal to young people's desire to share information about themselves, to be evaluated by others and to get a glimpse of other people's lives—Facebook, Snapchat and Instagram are good examples. However, more recent studies suggest that while our sense of the imaginary audience increases between childhood and adolescence, it remains quite

high even in adulthood. Perhaps we are all, to some extent, overly concerned with what other people are thinking about us. Even though Facebook, for example, was set up by, and aimed at, young people, it has become increasingly popular with older people. We all seem to be interested in how we are seen by others, and social media might be amplifying that interest and allowing us to express it more explicitly than in the past.

2. Reward and punishment

A 2016 study in my lab revealed that adolescents are less likely to learn to avoid punishment. A group of adolescents aged 12-17 years, and a group of young adults aged 18-32 years, completed tasks in which they had to choose between different kinds of symbols. Each symbol was consistently associated with a fixed chance of a reward (gaining money) or punishment (losing money). As the task progressed, participants were able to learn which symbols were rewarding and which were punishing, and gradually adjusted their choices accordingly.

The results showed that the two groups were equally good at learning to choose symbols associated with reward, but that the adolescents were worse than adults at avoiding symbols associated with punishment. The results suggest that adolescents and adults learn in different ways, and that a reward-based approach, rather than punishment, might be more effective in adolescent learning.

If teenagers tend to be more influenced by reward than by punishment, and are more tempted by immediate rewards than inclined to wait for larger rewards later, perhaps this explains why advertising warning about the long-term damaging effects of, say, smoking can have little effect on this age group. One study found that the advertisements that had the greatest potential for preventing young people from smoking were ones that focused on second-hand smoke, the smoker as negative role model, refusal skills and the misleading image that smoking is safe. None of these messages has anything whatsoever to do with actual health risks to the smoker, but largely focus on the effects on others.

A similar finding emerged from a study in which adolescents were told how companies are trying to manipulate them into unhealthy eating. For one group, healthy eating was framed as a way to take a stand against the manipulative, unfair practices of the food industry, such as engineering junk food to make it addictive and marketing it to children. For another group, the focus was on traditional health education. The group who had been told about unfair practices in the food industry saw healthy eating as a way of exercising independence and taking a stand in line with social justice. This group were more likely to select healthier options and resist unhealthy snacks and drinks one day later.

It seems that public-health campaigns aimed at adolescents are likely to succeed when they focus on values important to young people: in this case, feeling socially conscious and independent. This healthy-eating campaign might also play into adolescents' desire to rebel against authority. Taken together, these studies suggest that, if we want to limit certain kinds of risk-taking in young people, it would be a good idea to focus on the immediate, social consequences of actions and decisions rather than delivering sincere warnings about long-term effects.

Notes

1. **adolescence:** period in somebody's life when they change from a child to an adult. Young people in this period are called adolescents.
2. **puberty:** stage in somebody's life when their body physically matures.

- (1) What are the two main topics of this text? Circle the best answer.
- a. Growing up and seeing how others see us; and, how young people learn.
 - b. Teenagers who don't worry about others; and, young people who like smoking.
 - c. How we don't think about other people as we get older; and, how junk food affects our brains.
 - d. How social media sites influence us; and, the problems of overeating.
 - e. People who watch teenagers; and, young people's risk-taking.
- (2) According to the article, why is a reward better than a punishment for teenager learning? Circle the best answer.
- a. Teenagers find it more difficult than adults to learn to avoid punishment.
 - b. Teenagers are more afraid of making mistakes compared to adults.
 - c. Teenagers cannot learn if they are punished by adults.
 - d. Teenagers learn to avoid smoking if they are warned about the negative health effects.
 - e. Teenagers don't like traditional health education as much as adults.
- (3) Explain in Japanese what an "imaginary audience" is.
- (4) Explain in Japanese the underlined section using an example from the article.
- (5) According to the article, what is a good way to decrease risk-taking in young people? Explain in Japanese.

問 2 次の英文を読んで、下の設問に答えなさい。

Artificial intelligence and creativity

American poet Ralph Waldo Emerson once said, “Every artist was first an amateur.” He likely never thought those words would apply to machines. Yet artificial intelligence (AI) has demonstrated a growing talent for creativity, whether writing a heavy-metal rock album or producing an original portrait that is strikingly similar to a Rembrandt.

Applying AI to the art world might seem unoriginal; there are, of course, plenty of humans delivering awe-inspiring work. Supporters say, however, the real beauty of training AI to be creative does not lie in the end product—but rather in the technology’s potential to expand on its own machine-learning education, and to solve problems by thinking in different ways far faster and better than humans can. For example, creative problem-solving AI could someday make snap decisions that save the lives of the passengers in a self-driving car if its sensors fail.

AI with a creative component will be essential in developing highly automated systems that can respond appropriately to human life, says Mark Riedl, an associate professor at Georgia Institute of Technology’s School of Interactive Computing. “The fact is, we do lots of little bits of creativity every single day; lots of problem-solving goes on,” Riedl says. “If my son gets a toy stuck under the couch, I have to devise a tool from a hanger to get it out.”

Riedl points out human creativity is also important in human social interactions, even telling a well-timed joke or recognizing a pun. Computers struggle with such subtleties. An incomplete understanding of how humans construct metaphors, for example, was all it took for an experiment in AI-generated literature to compose a new Harry Potter chapter filled with nonsensical sentences such as, “The floor of the castle seemed like a large pile of magic.”

Still, getting machines to accurately mimic human style—whether Rembrandt’s or J. K. Rowling’s—is perhaps a good place to start when developing creative AI, Riedl says. After all, human creators often start off imitating the skills and processes of well-known artists. The next step, for both people and machines, is to use those skills as part of a strategy to create something original.

Today’s AI programs are not advanced enough to spontaneously compose hit songs or paint masterpieces. To get AI to do those things, humans must first set up a program by feeding it large numbers of examples. German AI artist Mario Klingemann, for instance, has designed artificial neural networks to assemble strange but charming images based on existing photographs and other visual artwork. An artificial neural network consists of a series of interconnected processing points, a system loosely based on the human brain’s neural structure.¹

Klingemann’s approach involves feeding source material such as paintings and photographs into computers which combine the power of two neural networks. One network generates images based on a certain theme or set of guidelines; the other evaluates the images based on its knowledge of those guidelines. Thanks to feedback from the second network, the first gradually gets better at making images that more accurately connect to the chosen theme. “Right now the networks are just tools that enhance our own creativity,” Klingemann notes. “We as humans still have to recognize the creativity or novelty.” His goal is to build artistic networks that can independently select their own best work based on the given theme.

Content-generating capabilities are a good start when it comes to developing AI that can solve real-world problems, says Ian Goodfellow, a staff research scientist at Google. Goodfellow has been working on machine-learning models to let computers invent more dynamic narratives, which could go beyond limited scenarios such as planning out a series of chess moves—something computers have done extremely well for decades.

Take a classic example of forward planning that humans do all the time:

When heading to the airport, we often vaguely map out—purely in our heads—the expected key details of the journey, such as traffic patterns or road repairs. AI would likely plan such a trip in great detail with too many possible routes and options. Goodfellow says what we really need is a layer of computation that looks at the many options produced by a neural network and intuitively decides which one is best.

Experiments are now underway with AI programs that can mix and match material. This suggests teaching AI not only the rules, but also how to throw them out the window when necessary—much like amateurs who grow into artists.

Note

1. **neural structure:** an interconnected system of neurons, as in the brain or other parts of the nervous system.

- (1) What is the main point of the article? Circle the best answer.
- AI can make better music than humans.
 - AI can be used to solve difficult problems by becoming more creative.
 - AI needs to develop by following a clear set of rules.
 - AI can beat humans at chess and draw beautiful pictures.
 - AI cannot create paintings and write books.
- (2) According to the article, what is NOT mentioned as a result of human creativity? Circle the best answer.
- Planning a series of chess moves
 - Telling a joke
 - Solving a problem
 - Writing a book
 - Producing a portrait
- (3) According to the article, how do people often start to be creative? Circle the best answer.
- They do forward planning.
 - They take lots of photographs.
 - They make experiments with AI.
 - They copy other creative people.
 - They invent self-driving cars.
- (4) According to the article, what two things can networks designed by Mario Klingemann do? Circle the best answer.
- Create rock albums and paint pictures
 - Create their own images and compare to previous images
 - Create new images based on the brain and then evaluate them
 - Create original images and then upload to social media
 - Create images based on guidelines and then evaluate them

- (5) According to the article, what is an example of creativity that humans can do every single day. Write in Japanese.
- (6) Explain briefly what people do when they drive to the airport and why AI is currently poor at performing the same task. Write in Japanese.

問 3 次の文章を読んで、下線部 ①, ②, ③ を英語にしてください。

旅先で子どもがいろいろな経験を通じて学ぶことを「旅育(たびいく)」と言います。昔から「かわいい子には旅をさせよ」と言いますが、小さいうちは海外に限らず近場でも家族旅行が大事です。

我が家の旅育は2008年のタイ・プーケットから始まり、イギリスで9回目でした。①みなさんに勧めているのは、子どもたちに現地のお金を渡して自分で買い物をさせることです。

うちの子どもたちは旅先で、すぐジュース、アイスと言い出すので、小学生になったころから現地の通貨で数百円分を渡しています。高いと思えば買わない。残りを考えて使うのです。おみやげを買うときも同じです。地図を見ながら、行き先やルートを考えさせることもあります。②子どもたちは、一緒に旅をしているうちに、ますます責任を感じるようになるのです。

旅育を呼びかけているのは、私自身が旅行を通じて成長できたからです。きっかけは、大学のサイクリング部で台湾に行ったことです。漢字で筆談したら通じたり、家に泊めてもらったりと初めての体験が楽しく、見ず知らずの所でもここまでできるんだという達成感がありました。もちろん、日ごろとは違う自然や町並み、考え方に触れる新鮮な驚きも旅の魅力です。旅行会社に勤めましたが、旅に出たくてたまらず、2年半かけて自転車で世界を一周しました。

2003年に帰国すると、どうも世の中に元気がありません。外で走り回る子どもをあまり見かけず、海外に行く若者たちが減っています。これは、親が過保護で外遊びや旅をさせないせいではないか。やはり、旅の力は大きいと思い、「旅」を人に勧める仕事をすることにしました。小さいころから旅の楽しさを知ってもらえればと思います。

実は家族でも、普段は一緒にいる時間が短いのです。旅にはトラブルがつきもの。③一緒に解決することで家族が結束すると思うのです。

問 4 次の英文を読んで、指示に従って英語で答えなさい。

In Japan, the increasing number of empty or abandoned houses has become a social issue. These are houses, for example, where the owner has died and their children do not want to live in the house.

What are some of the problems that these houses cause and what suggestions do you have to solve the issue? Write your answer in about 10 lines.