

1 次の英文を読んで設問に答えなさい。(127 点)

(a) A 2-year-old requires up to 14 hours of sleep a night, and a 9-year old as much as 12, while a middle-aged adult should function well with eight. (b) Making sure kids get all the sleep they need is crucial: it's well established that inadequate sleep in early childhood affects brain development and socialization. (c) High school students in the U.S.A. who slept less than six hours a night were twice as likely to use alcohol, tobacco, or marijuana^(註) as those who slept eight hours, according to a 2018 study, and were three times as likely to consider or attempt suicide. (d)

The teenage brain (1) very much a developing brain and needs (2) be treated as such. "There's a big growth spurt^(註) (3) adolescents when (4) one-third (5) the connections in the brain die and reorganize in (6) rather radical way, (7) requires more sleep," Matthew Edlund (director of the Center for Circadian Medicine in Sarasota, Florida) says. "It's like (8) you get sick: You sleep more because you (9) to regenerate what was damaged (10) your illness."

At the same time, though, adolescents experience about a two-hour shift in the release of melatonin^(註), preventing most from getting sleep before about 11 p.m. This wouldn't be a problem if kids could adjust their schedules to fit with their shifting biology, but they can't: School starts at 8:00, and alarms go off by 7:00. "It's equivalent to an adult being woken up at 4 a.m.," says Wendy Troxel, a behavioral scientist at the RAND Corporation. "At 6 a.m., kids' bodies are still pumping^(註) out high levels of melatonin, making them extremely sleepy, lethargic^(註), and often irritable."

Adults in their mid-to-late 20s have the most flexibility. "A healthy young adult is able to recover quite well from inconsistent sleep," Winter says. "You can abuse yourself and still go to work the next day and do pretty OK." But it doesn't last: By our 40s, ⑤ (capacity, from, to, quickly, start, recover, we, to, the, lose) inconsistent sleep.

It's often assumed that older adults require less sleep than others. That's not the case: People over 65 still need seven to eight hours a night. But they do face other changes. "Once people are no (11) forced to follow a traditional (12) or their kids' school (13), they often do things at (14) times," Edlund says, "and their sleep architecture changes." "Older people don't wake up at 5 a.m. because they (15) less sleep but (16) they

may be eating dinner (17) than they used to, or (18) more often, or (19) less morning sun because they no longer (20).

And yet, nearly half of older adults complain of difficulty sleeping. That's partly because sleep tends to become lighter and more fragmented with age, leaving us more susceptible^(注) to waking. Rates of apnea^(注) and insomnia^(注) tend to increase with age as well. But the primary threats to sleep later in life are physical and psychiatric illnesses and the medications^(注) used to treat them. "The worst thing you can do is assume your sleep issues are simply a byproduct^(注) of age," Edlund says. "If your sleep is suffering, it very well may be due to a treatable condition."

(*The New Science of Sleep*, Psychology Today MAY/JUNE 2019 より。

ただし出題にあたり本文の趣旨を変えない範囲で一部改変した。)

- (注) marijuana : マリファナ growth spurt : 急成長
melatonin : メラトニン(夜間に血液中に増加して睡眠を促すホルモン)
pump : 分泌する lethargic : けだるい susceptible : ～しやすい
apnea : 一時的な呼吸停止 insomnia : 不眠症 medication : 薬剤
byproduct : 副産物

設問 1. 次の文を挿入するのに最も適した箇所を(a)～(d)の中から選び、記号で答えなさい。

"And when tweens^(注) and teens get insufficient rest, the effects are felt in the limbic system^(注) and can lead to a greater chance of engaging in risky behavior."

- (注) tween : 10 歳前後の子供
limbic system : 大脳辺縁系(脳の一部で感情、意欲、睡眠、自律神経系などに関係する)

設問 2. 本文中の(1)～(10)にあてはまるものを A ～ J から選び、記号で答えなさい。ただし重複はしない。

- | | | | | |
|-------|----------|---------|---------|-------|
| A. in | B. which | C. by | D. when | E. to |
| F. is | G. about | H. have | I. a | J. of |

設問 3. 本文に基づき、下記の表現に続く適切なものを A ～ E からすべて選び、記号で答えなさい。

According to the information in paragraph 3, the release of melatonin in teenage brains

- A. prevents them from sleeping after 11 p.m.
- B. helps them to adjust to their school schedules.
- C. helps them to wake up earlier than 7 a.m.
- D. occurs later in the evening than the release of melatonin in adult brains.
- E. may slow down their movement in the early morning.

設問 4. 下線部 ㊦ が適切な意味になるように()内の単語を並べ替えなさい。

設問 5. 本文中の(11)～(20)に当てはまる適切なものを A ～ J から選び、記号で答えなさい。ただし重複はしない。

- | | | | | |
|------------|-------------|------------|------------|--------------|
| A. need | B. schedule | C. commute | D. earlier | E. longer |
| F. workday | G. napping | H. because | I. getting | J. different |

設問 6. 下記の 1 ～ 10 の内容について、A ～ C の中で該当するものを選び、記号で答えなさい。

- A. 本文で述べられている内容と一致している。
- B. 本文で述べられている内容と一致していない。
- C. 本文で述べられている内容では判断できない。

1. No matter what your age, you still need the same amount of sleep.
2. Older adults, as they face various changes in their sleep architecture, require more sleep than middle-aged adults.
3. Teenagers who are suffering from a lack of adequate sleep are more likely to use tobacco than to attempt suicide.
4. People in their teens are the age group that are most able to cope with a lack of sleep.
5. Medications used to treat sleep may cause greater sleep problems than apnea or insomnia.
6. Teenagers find it more difficult to wake up early than older adults.
7. The levels of melatonin in one's body are affected by one's use of alcohol and tobacco, with an even greater chance of these effects in teenagers.
8. If a young child is not getting enough sleep, this can affect the child's relationships with other children.
9. The release of melatonin causes risky behavior such as using alcohol, tobacco, or marijuana in teenagers.
10. As people age, they tend to need less sleep.

2 次の英文を読んで設問に答えなさい。(80 点)

Sure, it would be better if no one smoked any nicotine^(注) products. But the U.S. Centers for Disease Control and Prevention's (CDC) repetition of that message makes important distinctions unclear.

Whether they're warning us about the risks of fat, salt, alcohol or electronic cigarettes, public health authorities tend to mislead^(注)—with the best of intentions! —by presenting a black-or-white thinking. They equate big risks, small risks and (1) risks under one umbrella as “unsafe.” In the case of electronic cigarettes, recently declared an “epidemic” and a “public health crisis,” the misleadingly critical message (balance, need, people, to, information, deprives, they, of) potential risks against potential benefits.^(A)

Electronic cigarettes, or e-cigarettes, are devices that create a (2) people breathe in, providing a nicotine fix without the tar^(注) that makes ordinary cigarettes so carcinogenic^(注). The products became popular over the last decade, so it's too early to know all the long-term risks, but they are very unlikely to be anywhere near as harmful as cigarettes. And that means people who switch from smoking to “vaping^(注)” may be (3) their lives and the lives of people around them.

The same black-or-white thinking has shaped the message that no amount of alcohol is safe. That's based partly on studies showing that a single drink a day is associated with a small increase in some cancers. But this could be put in a glass-half-full perspective, so to speak, emphasizing that even people who consume a drink every day B.

How can grouping small and large risks together possibly help people make healthy choices? This seemed like a good question for Peter Sandman, an independent expert on risk communication. He told me that he considers the anti-vaping messages from the CDC to be dishonest and possibly harmful. “It's almost unlikely that anything that doesn't involve (4) is going to be anywhere near as dangerous as smoking,” he said.

While some experts have suggested that electronic cigarettes contain carcinogenic compounds, and that the nicotine itself, while not a cause of lung disease, might be harmful, Sandman said these are (5) risks compared with smoking—which adds tar to the risks associated with nicotine and most of the other carcinogens.

To him, the most important question is how vaping influences the much more dangerous practice of smoking. Vaping should be considered dangerous if it functions as a gateway drug^(注), leading more people to smoke. Likewise, he said, it should be considered beneficial if it acts as a (6) for smoking, giving people a safer choice.

Much of the concern at the CDC focuses on the millions of teenagers who have experimented with e-cigarettes. ⑩ Teenagers would be much healthier without using any nicotine products, as they run a high risk of addiction, but Sandman argues that even the danger to teenagers has been exaggerated.

He pointed me to a blog post he wrote about a 2015 report by the CDC, and an accompanying news release, painting a gloomy picture of a rapid rise in teen vaping over the previous few years. The report announced that “youth use of tobacco in any form is unsafe.” (The CDC refers to electronic cigarettes as a tobacco product because some of them (7) their nicotine from tobacco.)

But the data showed an equally steep decrease in teen smoking, he wrote: “For sure teenage smoking is down. That’s wonderful news, made only a little less wonderful by the fact that teenage (8) is up.”

The false distinction between safe and unsafe practices showed up in the reaction to a series of columns for the New York Times, written by Joe Nocera. While some of his Times columns called out the misinterpretation of scientific data to try to blame electronic cigarettes, others pointed to the potential good they could do by allowing nicotine addicts to get their drug a much safer way.

A criticism in HealthNewsReview.org, which I usually find reasonable, makes the ridiculous contention that it’s illegitimate to have an opinion at all about whether vaping has a positive side, because its dangers are not yet fully understood. The critic’s logic was that, because Nocera was “expressing opinions on matters of fact,” he “is not entitled to an opinion on whether e-cigs might save lives any more than he is entitled to an opinion on whether the sky is blue or the sun sets in the west.”

(E) Of course people are entitled to opinions about how we should behave in the face of uncertain risks. (F) We science journalists express or give voice to opinions on uncertain risks all the time—whether these concern pesticides, household chemicals, GMOs^(註) or probable consequences of global warming. (G) Cutting off discussion of potential benefits of e-cigarettes might be politically correct, but it’s not rational. (H)

(*Why it’s risky to call e-cigarettes unsafe*, <https://www.japantimes.co.jp/opinion/2019/06/15/commentary/world-commentary/risky-call-e-cigarettes-unsafe/#.XQdIV3duKUk>

[accessed 15 June 2019] より。

ただし出題にあたり本文の趣旨を変えない範囲で一部改変した。）

(注) nicotine : ニコチン mislead : 誤解させる tar : タール
 carcinogenic : 発癌(性)の vaping : 電子タバコを吸うこと
 gateway drug : より強い薬物の使用につながる入り口となる薬物
 GMOs : genetically modified organisms

設問 1. 本文の内容を踏まえ、下線部 ㉔ が適切な意味になるように () 内の単語を並べ替えなさい。

設問 2. 本文中の (1) ~ (8) にあてはまる最も適切なものを A ~ E から選び、記号で答えなさい。

- | | | | | |
|-----|------------------|-------------------|---------------|---------------|
| (1) | A. philosophical | B. religious | C. historical | D. literal |
| | E. hypothetical | | | |
| (2) | A. smoke | B. vapor | C. dose | D. smell |
| | E. risk | | | |
| (3) | A. prolonging | B. revising | C. reducing | D. worsening |
| | E. regaining | | | |
| (4) | A. vapping | B. breathing | C. burning | D. absorbing |
| | E. bursting | | | |
| (5) | A. major | B. inevitable | C. minor | D. urgent |
| | E. profound | | | |
| (6) | A. merit | B. remedy | C. cue | D. substitute |
| | E. paradox | | | |
| (7) | A. derive | B. erase | C. decline | D. consist |
| | E. combine | | | |
| (8) | A. smoking | B. use of tobacco | C. nicotine | D. risk |
| | E. vaping | | | |

設問 3. B に入る最も適切な表現を 1 ~ 5 から選び、記号で答えなさい。

1. have not increased health risks at all
2. have only slightly increased health risks
3. are more likely to increase health risks
4. are likely to suffer from cancer
5. have made healthy choices

設問 4. 下記の 1～7 の内容について、A～C の中で該当するものを選び、記号で答えなさい。

- A. 本文で述べられている内容と一致している。
- B. 本文で述べられている内容と一致していない。
- C. 本文で述べられている内容では判断できない。

1. The modern e-cigarette was invented fifteen years ago.
2. The author insists that e-cigarettes seem to be as harmful as cigarettes.
3. Many big tobacco companies sell e-cigarettes.
4. According to some experts, e-cigarettes contain compounds which could cause cancer.
5. E-cigarettes do not produce the tar produced by traditional cigarettes.
6. Sandman claims that the dangers of vaping to teens should be more emphasized.
7. A report by the CDC indicated that even e-cigarettes were unsafe for young people.

設問 5. 空白になっている C には次の A～D の 4 つの文が入る。4 つの文を最も適切な順に並べ、その順を記号で示しなさい。

- A. The public health community in the United Kingdom has embraced them, based on the estimate that they are 95 percent less harmful than smoking.
- B. There is a public health approach known as harm reduction, which is often associated with safe injection site programs.
- C. We don't know yet whether electronic cigarettes also save lives this way, said Sandman, but we have to make policy with limited data.
- D. Sure, it would be better if nobody injected drugs, but in our imperfect world, clean needles save lives.

設問 6. 本文中の下線部 ㊦ を日本語に訳しなさい。

設問 7. 以下の文は(E)～(H)のどの位置に補うのが最も適切か。その記号を答えなさい。

But that makes no sense.

3

次の1～12の文中の()に入れる最も適切なものをA～Eから選び、その記号で答えなさい。(24点)

1. The US is much more () to abortion than other developed countries.
A. fierce B. ripe C. hostile D. deliberate
E. temporary
2. He was one of the most () criminals in the history of India.
A. swift B. implicit C. deteriorate D. contaminate
E. notorious
3. When the liver is () over years of alcohol abuse, the increasing damage can be hard to notice.
A. impaired B. oppressed C. fermented D. evaporated
E. expelled
4. Female mammals produce milk to () their young.
A. hatch B. nourish C. reign D. corrupt
E. furnish
5. He is not a () child and cannot keep his desk clean and in order.
A. uneasy B. cynical C. conceit D. tidy
E. empirical
6. I () to tell you that your father is seriously injured.
A. regret B. mind C. allow D. permit
E. deny
7. Many victims of the earthquake were forced to () their town.
A. postpone B. eliminate C. external D. flee
E. twist

8. If it had not been for his help, she () now.
- A. would not have been alive B. must not have been alive
C. would not be alive D. is not alive
E. had not been alive
9. Parents tend to () their wishes to the children's good.
- A. lament B. subordinate C. deserve D. accomplish
E. resolve
10. The city's older industrial areas went through a difficult () period.
- A. priest B. fluid C. inherit D. utility
E. transition
11. He had once been () from school for a week for cheating.
- A. signified B. disguised C. enrolled D. inferred
E. suspended
12. They admired the () scenery of the Northern Alps.
- A. magnificent B. imperial C. obsolete D. obligatory
E. anonymous

4

次の1～7の文が適切な意味になるように()内の単語を正しく並べかえなさい。(21点)

1. There are Turkish women (they, such, beauty, possess, of, that, can) a man's mind.
2. In fact, (point, beside, recognizes, is, she, whether, the, it) the benefits of the products or not.
3. According to new statistics, two-parent families in which (normal, anything, stay, are, the parents, but, married).
4. He is requested (with, what, make, is, to, do, available).
5. No sooner (go, away, to, turned, than, had, downstairs, he) he heard a strange laugh.
6. The (not, to, calculator, allowed, were, use, a, students) in the math test yesterday.
7. (that, with, him, is, he, trouble, the) talks too much.

5

次の英文を読んで設問に答えなさい。(48点)

People worldwide are living longer. Today, for the first time in history, most people can expect to live into their sixties and beyond. By 2050, the world's population aged 60 years and older is expected to total 2 billion, up from 900 million in 2015. Today, 125 million people are aged 80 years or older. By 2050, there will be almost this many (120 million) living in China alone, and 434 million people in this age group worldwide. By 2050, 80% of all older people will live in low- and middle-income countries.

The pace of population ageing around the world is also increasing dramatically^(注). France had almost 150 years to adapt to a change from 10% to 20% in the proportion of the population that was older than 60 years. However, places such as Brazil, China and India will have slightly more than 20 years to make the same adaptation.

While this shift in distribution of a country's population towards older ages—known as population ageing—started in high-income countries (for example in Japan 30% of the population are already over 60 years old), it is now low- and middle-income countries that are experiencing the greatest change. By the middle of the century many countries, e.g. Chile, China, the Islamic Republic of Iran and the Russian Federation, will have a similar proportion of older people to Japan.

A longer life brings with it opportunities, not only for older people and their families, but also for societies as a whole. Additional years provide the chance to pursue new activities such as further education, a new career or pursuing a long neglected passion. Older people also contribute in many ways to their families and communities. Yet the extent of these opportunities and contributions depends heavily on one factor: health.

There is, however, little evidence to suggest that older people today are experiencing their later years in better health than their parents. While rates of severe disability have declined in high-income countries over the past 30 years, there has been no significant change in mild to moderate disability over the same period.

If people can experience these extra years of life in good health and if they live in a supportive environment, their ability to do the things they value will be little different from that of a younger person. If these added years are dominated by declines in physical and mental capacity, the implications for older people and for society are more negative.

At the biological level, ageing results from the impact of the accumulation of a wide variety of molecular and cellular damage over time. This leads to a gradual decrease in physical and mental capacity, a growing risk of disease, and ultimately, death. But these

changes are neither linear nor consistent, and they are only loosely associated with a person's age in years. While some 70 year-olds enjoy extremely good health and functioning, other 70 year-olds are frail^(注) and require significant help from others.

Beyond biological changes, ageing is also associated with other life transitions such as retirement, relocation^(注) to more appropriate housing, and the death of friends and partners. In developing a public-health response to ageing, it is important not just to consider approaches that ameliorate^(注) the losses associated with older age, but also those that may reinforce recovery, adaptation and psychosocial growth.

(中略)

Although some of the variations in older people's health are genetic, much is due to people's physical and social environments—including their homes, neighbourhoods, and communities, as well as their personal characteristics—such as their sex, ethnicity, or socioeconomic^(注) status. These factors start to influence the ageing process at an early stage. The environments that people live in as children, combined with their personal characteristics, have long-term effects on how they age.

Environments also have an important influence on the development and ① maintenance of healthy behaviours. Maintaining healthy behaviours throughout life, particularly eating a balanced diet, engaging in regular physical activity, and refraining from tobacco use all contribute to reducing the risk of non-communicable diseases and improving physical and mental capacity.

(Ageing and Health World Health Organization (WHO) Media Center, Fact Sheet,
<http://www.who.int/mediacentre/factsheets/fs404/en/> より。
ただし出題にあたり本文の趣旨を変えない範囲で一部改変した。)

(注) dramatically : 劇的に frail : 脆弱, 虚弱 relocation : 転居, 移転
ameliorate : 改善する socioeconomic : 社会経済的な

設問 1. 下記の (1)～(9) の内容について、A～C の中で該当するものを選び、記号で答えなさい。

- A. 本文で述べられている内容と一致している。
- B. 本文で述べられている内容と一致していない。
- C. 本文で述べられている内容では判断できない。

- (1) 2050 年までに世界の 60 歳以上の人口は、2015 年の 3 倍以上になると予想される。
- (2) フランスの高齢化はゆっくり推移しており、現在の 60 歳以上の人口割合は欧米諸国の中で最も低い。
- (3) ブラジル、中国、インドの高齢化はフランスより 20 年早く経過している。
- (4) 2050 年までに世界の高齢者の 80% は低—中所得の国々に住むこととなる。
- (5) 低—中所得の国々の高齢化はまだ始まっていない。
- (6) 2050 年までに中国の 60 歳以上の人口は、約 1 億 2000 万人になる。
- (7) 長生きによって生まれるチャンスは、本人だけでなく家族や社会にもおとずれる。
- (8) 現在の高齢者は、彼らの親よりも多くの面でより健康であるというデータが多い。
- (9) 重度の障害をもつ高齢者の割合は、高所得の国のほうが低—中所得の国々より少ない。

設問 2. 下線部 ④ population ageing の意味について、本文中から具体的な例をあげて日本語で説明しなさい。

設問 3. 下線部 ⑤ の文章を読んで、ageing に影響を与える要因について、① biological なもの、② それ以外のものについてそれぞれ日本語で説明しなさい。

設問 4. 下線部 ⑥ how they age に影響を与える ① 環境要因および、② 個人の要因として具体的に本文中に記載されているものは何か。それぞれ日本語で答えなさい。

設問 5. 下線部 ⑦ maintenance of healthy behaviours について本文から具体的な例をあげて日本語で答えなさい。