

令和2年度 東北医科薬科大学入学試験問題

医学部 一般・外国語

《注意事項》

1. 解答用紙左部に氏名、フリガナ、その下部に受験番号を記入し、例にならって○にマークしなさい。

(例) 受験番号 1 0 0 0 1 の場合

フリガナ				
氏名				

受験番号				
万	千	百	十	一
1	0	0	0	1
●	●	●	●	○
①	①	①	①	①
②	②	②	②	②
③	③	③	③	③
④	④	④	④	④
⑤	⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨	⑨
⑩	⑩	⑩	⑩	⑩

2. この問題冊子は、13ページまであります。

3. 試験中に問題冊子の印刷不鮮明、ページの落丁・乱丁等に気付いた場合は、手を高く挙げて監督者に知らせなさい。

4. 解答方法は次のとおりです。

(1) 次の例にならって解答用紙の解答欄にマークしなさい。

(例) 問1 東北医科薬科大学のある都市は次のうちどれか。

① 札幌市 ② 青森市 ③ 仙台市 ④ 秋田市
⑤ 山形市 ⑥ 盛岡市 ⑦ 福島市 ⑧ 横浜市

③と解答する場合は解答用紙の③をマークしなさい。

解答欄										
番号	1	2	3	4	5	6	7	8	9	10
1	①	②	●	④	⑤	⑥	⑦	⑧	⑨	⑩

(2) 解答の作成にはH、F、HBの黒鉛筆またはシャープペンシル(黒い芯に限る)を使用し、○の中を塗りつぶしなさい。解答が薄い場合には、解答が読み取れず、採点できない場合があります。

(3) 答えを修正する場合は、プラスチック製の消しゴムあとが残らないように完全に消しなさい。鉛筆のあとが残ったり、×のような消し方などした場合は、修正または解答したことにならないので注意しなさい。

(4) 解答用紙は折り曲げたり、メモやチェック等で汚したりしないよう、特に注意しなさい。

(試験終了後、問題冊子は持ち帰りなさい。)

【 I 】 次の英文を読み、問い合わせ（問 1～5）に答えよ。

Over the couple of years I spent growing a lot of our vegetables and fruits when I lived in rural Oregon, I found it a lonely way to spend much of each day. Many other enjoyable and important parts of my life had to be put on hold or (1) altogether to make room for the work of growing my food. Those accumulated solitary hours gave me plenty of time to think about why I was doing it and what it was doing to me. I began to ask myself, "Why does the idea of growing all our own food have such allure?"

For several hundred million people or more in the world, growing their own food—subsistence farming—is the (1)principal way to feed themselves.

[A] But that's rarely true in the developed world. For the last half century, food in the developed world has cost less, in terms of how much time is spent working to pay for it, than at any other time in history. Yet the desire to grow all their own is often the default response of North Americans who want to *get back to the land or to *unplug from consumer culture. One reason is that once we realize that we're dependent on systems that we no longer believe in and that do immense harm, pulling entirely out of the commodity-food culture seems the quickest, easiest solution. When we first consider living more sustainably, self-sufficiency is an attractor that (2)sucks us powerfully toward it. But another reason that Americans in particular default to going it alone is that the United States was settled in a unique way that idealizes that path. [B]

Most of the planet's land was settled either by an expanding population pushed to adjacent unpeopled places in their search for new resources or by conquest and subjugation of the people living in a desirable spot. [C] But once the United States was founded, much of the migration (2) new land was done by government edict, and the land was deeded to individuals and single families in a singular, atypical process. To encourage settlement as well as to raise money, in 1785 the US Continental Congress passed the National Land Ordinance, which plastered a grid over what was eventually three-quarters of the lower forty-eight states (excluding Alaska and Hawaii), turning millions of square miles of open land into a checkerboard of rectilinear townships 6 miles on a side, each divided into square-mile "sections" regardless of geography, natural boundaries, or indigenous inhabitants.

Settlers bought or were given sections that were often far away and deeded unseen.

This process of individual rather than collective settlement and ownership was bolstered by the Homestead Act of 1862, which gave heads of households or individual adults title to parcels of federal land if they met certain requirements. [D] To win the title to land, settlers had to "prove" the parcel: live on it, build a home, add improvements such as wells and barns, and farm there for five years. Homesteads were almost always settled by single families, each driven by the mandate to *make a go of it themselves. This virtually unique aspect of US history, of individual (3) collective land development, driven by the demand to prove the land (and themselves), is embedded deep into Americans' psyches. It has helped make self-sufficiency a national fetish. [E]

Of course, there are real and valid reasons to want to grow your own food. It's (3) immensely satisfying to see seeds sprout and become delicious nourishment. Growing food connects us to the cycles of life. Homegrown food tastes better than the stuff from the store, and it's almost (4) fresher. And whatever your politics, supplying your own resources offers emancipation from a system that seems, for so many of us, no longer to reflect our values or support the things we want to see in the world. The skills for self-reliance are gratifying to develop and give us a sense of security and strength in a world that frequently does not feel reliable, safe, healthy, or sensible.

But does that mean that it makes sense to grow all you own food? I can attest that growing just a small portion of it will earn you the same skill set that you'd gain from growing all of it. And if your hard work is the (4) sole source of your food, how safe or reliable will it be if you get hurt or sick? You could be watching from your sickbed as your crops wither and die. Having a single source of food violates the essential principle of an ecological lifestyle by meeting essential needs in multiple ways, and that's a serious error. And yet the desire to grow much of our own food won't go away so easily. So (5) do we work with that?

[*注] get back to the land : return to nature / unplug from : stop relying on / make a go of it : try, attempt

問 1 本文中の空欄(1)～(5)に入る最も適当なものを①～⑤の中から一つ選び、その番号をマークせよ。

(1) 空欄 (1) 1

① added ② confined ③ dealt ④ dropped ⑤ mixed

(2) 空欄 (2) 2

① against ② by ③ into ④ through ⑤ without

(3) 空欄 (3) 3

① based on ② in accordance with ③ rather than
④ similar to ⑤ with

(4) 空欄 (4) 4

① always ② never ③ questionably
④ sometimes ⑤ unavoidably

(5) 空欄 (5) 5

① how ② where ③ what ④ whatsoever ⑤ when

問 2 下線部(1)～(4)の語の本文中の意味に最も近い語を一つ選び、その番号をマークせよ。

(1) 下線部(1)principal 6

① brave ② conspicuous ③ hearty ④ main ⑤ simple

(2) 下線部(2)sucks 7

① influences ② provokes ③ pulls ④ recognizes ⑤ repels

(3) 下線部(3)immensely 8

① darkly ② greatly ③ inappropriately ④ partially ⑤ poorly

(4) 下線部(4)sole 9

① alternative ② combined ③ few ④ only ⑤ potential

問3 次の一文は、本文中の空欄 [A]~[E] のどこに入れるのが最も適當か。①~⑤の中から一つ選び、その番号をマークせよ。 10

In either case the new settlers were usually groups such as tightknit tribes or armies and their camp followers.

- ① 空欄 [A]
- ② 空欄 [B]
- ③ 空欄 [C]
- ④ 空欄 [D]
- ⑤ 空欄 [E]

問4 本文にタイトルをつけるとしたら、どれが最も適當か。①~⑤の中から一つ選び、その番号をマークせよ。 11

- ① Does growing your own food create a sense of well-being?
- ② On American's food preferences
- ③ Should I grow all my own food?
- ④ The history of agriculture in the United States
- ⑤ What is the fundamental principle of growing vegetables and fruits?

問5 次の文(1)~(4)の内容が本文の内容と一致する場合は①を、一致しない場合は②をマークせよ。

(1) 12

Subsistence farming is practiced by a small number of people around the world.

(2) 13

The only purpose of the National Land Ordinance passed by the US Continental Congress in 1785 was to promote settlement.

(3) 14

Under the Homestead Act of 1862, settlers could own the land they lived on by constructing a house with other improvements and farming for at least five years.

(4) 15

Obtaining the ability to provide for oneself is satisfying and makes us feel secure.

【 II 】 次の英文を読み、問い合わせ (問 1~4) に答えよ。

Following a map isn't the only time people test their skills at navigation. We find routes all the time, whether it's from one end of the house to another or to school and back. How does your brain get you to your destination? Two brain areas work together, a new study finds. One taps your memory to figure out where you are. (1) uses that information to plan the path ahead. This discovery could help scientists one day design spaces for people who have difficulty finding their way.

The word "memory" makes people think of the past. But without it, no one could plan for the future. This is especially true in navigation, says Amir-Homayoun Javadi. He's a neuroscientist — someone who studies the brain — at the University of Kent in Canterbury, England. He and his colleagues wanted to figure out how the brain finds different routes to a destination.

The scientists recruited 24 volunteers for a two-hour tour of Soho. It's a neighborhood in London, England. Guides led the participants around, pointing out landmarks, book shops, cafes and other points of interest. These might help the volunteers later find their way. As they pointed things out, the guides also told the participants which direction they were facing — north, south, east or west. [A]

One day later, the volunteers came to the lab and lay down inside a machine that does functional magnetic resonance imaging, or fMRI. This brain scanner tracks the flow of blood in the brain. That blood carries oxygen. If a part of the brain is very active, it will need more oxygen. So more blood will move toward it. Scientists therefore use blood flow (2) a way to pinpoint which brain areas are working hard during a task.

As the participants lay in the machine, they saw 10 videos of the neighborhood they toured the day before. In five of them, they "traveled" without having to find their own way. For the rest, they had to use a computer to navigate to a specific location. Sometimes, the scientists told them a route had been blocked. Now, instead of turning right, they might have to turn left. These (3) forced the volunteers to use their memories to chart a new path to their destination.

The people remembered a lot from their tour, Javadi notes. [B]

On average, despite the road blocks they reached their destination more than 80 percent of the time. But Javadi didn't care much about accuracy. While the volunteers navigated Soho, he and his colleagues were trying to determine which parts of the brain had been guiding them.

Two particular brain areas had been active in this pathfinding. The first was the right **hippocampus*. Each brain has two of these structures — one on either side of the head. Each forms a coil that curves up and back behind the ears. Hippocampi are important. (4) them, new memories cannot form.

When participants were steering around the Soho video, they were sending a lot of blood to the **posterior* part of their right hippocampus. This part of the brain was especially active when the participants chose a new direction at an intersection. (1) The right posterior hippocampus seemed to be keeping track of the change in the number of possible turns as someone moved from one intersection to the next. The first intersection may have allowed for many different turns, the next for only one or two, for instance. The hippocampus kept track of those differences in the number of options — and worked harder at intersections with many possible turns.

[C]

But how did people know which way to turn next? Here, the prefrontal cortex got involved. Just behind the forehead, this brain area helps with complex activities. Among them are making decisions.

(2) This region also helps plan a future route, Javadi and his colleagues showed. When the volunteers had to find their way around roadblocks, the prefrontal cortex was more active. The hippocampus keeps track of where you are, but "the prefrontal cortex is one step ahead," Javadi explains.

The team published its results in *Nature Communications*.

"(3) It's a fascinating study that breaks new ground in helping us understand how, and for what purposes, the hippocampus represents spatial information," says Lynn Nadel. He's a cognitive neuroscientist — someone who studies how the brain produces thoughts — at the University of Arizona in Tucson. [D] And it's not just about finding our way, he adds. These brain areas also may be important for how our memories function.

The findings may help scientists understand more about our brains. But Javadi also hopes his work might help patients with diseases, such as

Alzheimer's, who may forget where they are. These patients can have a hard time remembering how to get home. Over time, they may even have difficulty getting around their own house. Javadi's findings could help in the design of buildings and neighborhoods that are easier for (5) with memory problems to navigate. [E]

[*注] hippocampus : 海馬 / posterior : 後部

問 1 本文にタイトルをつけるとしたら、どれが最も適当か。①～⑤の中から一つ選び、その番号をマークせよ。 16

- ① Blood analyzer and blood analyzing method
- ② Lost memory in Soho
- ③ Patients with hippocampus damage
- ④ Two brain areas team up to make mental maps
- ⑤ Traveling around the world

問 2 本文中の空欄(1)～(5)に入る最も適当なものを①～⑤の中から一つ選び、その番号をマークせよ。

- (1) 空欄(1) 17
 - ① Either ② Neither ③ Other ④ The other ⑤ Who
- (2) 空欄(2) 18
 - ① above ② across ③ amid ④ as ⑤ with
- (3) 空欄(3) 19
 - ① detours ② particles ③ pedestrians ④ spaces ⑤ tumors
- (4) 空欄(4) 20
 - ① Among ② Beneath ③ Due to ④ Throughout ⑤ Without
- (5) 空欄(5) 21
 - ① every ② them ③ these ④ they ⑤ those

問3 次の一文は、本文中の空欄[A]～[E]のどこに入れるのが最も適當か。①～⑤の中から一つ選び、その番号をマークせよ。 22

The study especially helps to show how the hippocampus and prefrontal cortex work together when a person enters a new space, he notes.

- ① 空欄[A]
- ② 空欄[B]
- ③ 空欄[C]
- ④ 空欄[D]
- ⑤ 空欄[E]

問4 本文中の下線部(1)～(3)の意味として最も適當なものを①～④の中から一つ選び、その番号をマークせよ。

(1) 下線部(1) 23

- ①ある人は一つの交差点から次の交差点へとどんどん移動するため、その人の海馬の右後部は、通ってきた交差点の数を可能な限り記録しているようであった
- ②ある人は一つの目的地を別の目的地へ変更することがあるため、その人の海馬の右後部は、曲がり角についての情報を上書きし続けているようであった
- ③ある人が一つの交差点から次の交差点まで移動する時、その人の海馬の右後部は、曲がることになり得る場所の数を絶えず把握しているようであった
- ④ある人が当初の目的地を別の目的地へ変更した時、その人の海馬の右後部は、可能な限り多くの変更履歴を残しているようであった

(2) 下線部(2) 24

- ①この地域は、将来、道路が建設されるための支援もしている
- ②この地域も、支援についての将来への道筋を示している
- ③この領域は、未来に通る道を計画するのにも役立つ
- ④この領域も、将来の道路建設の計画をする上で役立つ

(3) 下線部(3) 25

① その興味深い研究は、我々がいかに理解するかを助ける上で新境地を開くものであり、海馬はどのような目的であっても、空間に関する情報を示している

② それは、海馬が空間に関する情報をどのように、そしてどのような目的で示すのかについて、我々が理解する助けとなる、新境地を開くような興味深い研究である

③ 海馬が、特別な情報をどのように、そしてどのような目的で示すのかについて、我々の理解の助けとなる新しい土壤を壊すことこそが、興味深い研究である

④ 海馬が、特別な情報をどれだけでも、そしてどのような目的でも示すのかについて、我々が理解の助けとなるものを求める際、それは新境地を開くような興味深い研究である

【III】次の問い合わせ(問1~10)の英文中の空欄(26)~(35)に入る最も適当なものを①~⑤の中から一つ選び、その番号をマークせよ。

問1 I meant to drop by a convenience store to buy some sweets on the way home, but it completely (26) my mind.
① flew ② decreased ③ disappeared ④ downed ⑤ slipped

問2 Steve's teacher was disappointed when she saw his messy paper. Instead of erasing his mistakes, he had just (27) them out.
① crossed ② drawn ③ excluded ④ pulled ⑤ written

問3 You are allowed to try (28) the Bluetooth speaker for a week and return it to the mail-order company if you are not satisfied.
① for ② on ③ out ④ over ⑤ up

問 4 The other day, I was asked to explain Japan's educational system in French. I did my best with my limited (29) of French, but it was far from perfect to say the least.

- ① authority ② command ③ control
- ④ ratio ⑤ requirement

問 5 She got angry at her staff for being (30). She said it was taking them twice as long to complete tasks as it should.

- ① adequate ② enough ③ inefficient ④ late ⑤ sufficient

問 6 Since I moved to Fukuoka for work reasons 10 years ago, I've grown (31) from a lot of my friends in my hometown.

- ① apart ② aside ③ beyond ④ out ⑤ over

問 7 Men (32) women at the company by 2 to 1.

- ① expand ② expend ③ outnumber ④ proceed ⑤ progress

問 8 A high (33), well over half, of the audience members were over 40 years old.

- ① depth ② many ③ percentage ④ regulation ⑤ selection

問 9 Yesterday we were (34) to stay at home on account of the heavy rain.

- ① compelled ② conserved ③ denounced
- ④ glanced ⑤ injected

問 10 A government cannot have too much of the kind of activity which does not (35), but aids and stimulates individual effort and development.

- ① confess ② grieve ③ impede ④ lag ⑤ roam

【IV】次の問い合わせ(問1~5)のa)、b)の文の意味がほぼ同じになるように、
b)の文の[]内の①~⑤の中から最も適当なものを一つ選び、その番号をマークせよ。

問1 36

a) That requires lengthy proceedings.
b) That requires some [① prolonged ② easy ③ puzzling
④ sensitive ⑤ simple] proceedings.

問2 37

a) My father was formerly a police detective.
b) My father [① used to ② used to be ③ used to being
④ was used to be ⑤ was used to being] a police detective.

問3 38

a) His name was left off from the invitation list by mistake.
b) His name was [① added ② assured ③ omitted ④ printed
⑤ written] from the invitation list by mistake.

問4 39

a) He is lacking in sincerity and so is not trusted by others.
b) He is [① asking ② coexisting ③ needing ④ requiring
⑤ wanting] in sincerity and so is not trusted by others.

問5 40

a) Anyone in full possession of their faculties would think so.
b) Anyone in their [① academic ② analytical ③ charitable
④ devious ⑤ right] mind would think so.

【V】 次の問い合わせ (問 1~5) の日本語の文の意味に合うように [] 内の語句を並べかえて意味の通る英文を作り、空欄 (41) ~ (50) に入るものを一つ選び、その番号をマークせよ。なお、選択肢の中には、解答に関係のないものも一つ含まれている。また、文頭に来る文字も小文字で表記してある。

問 1 砂漠に暮らすその部族は、その日暮らしの狩猟採集民であった。

The () () (41) () () (42) ()
mouth.

[① desert tribes ② hand ③ hunter-gatherers ④ in ⑤ lived
⑥ to ⑦ were ⑧ who]

問 2 私に割り当てられた部屋は、居心地が良いとはとても言えなかった。

() () (43) () () (44) () ().
[① anything ② assigned ③ but ④ comfortable ⑤ me
⑥ not ⑦ the room ⑧ to ⑨ was]

問 3 あんなにひどい事故で彼が生き延びることができたのは、奇跡にほかならない。

The fact that () () () (45) () ()
() (46) () a miracle.
[① a serious accident ② could ③ he ④ is ⑤ less
⑥ nothing ⑦ something ⑧ such ⑨ survive ⑩ than]

問 4 私は、昔ながらのスタイルで何かをすることにこだわっている。オンラインで確認するのではなく、ATMまで行って通帳の記帳をすることを続けている。

I () (47) things the old-fashioned way. I continue to
() () () (48) () () () check
online.
[① an ATM ② cling ③ my bankbook ④ not ⑤ rather
⑥ than ⑦ to ⑧ to doing ⑨ update ⑩ walk to]

問5 まず、ボウルに既に入っている粉末に牛乳を加えてよくかき混せてください。次に、皆さんの生地が適切な混ぜ具合になっているかどうかを確認させてください。

First, add () () (49) () and stir the mixture thoroughly, then () () (50) () all of you have a batter with the correct texture.

[① about ② already in the bowls ③ check ④ if ⑤ let
⑥ me ⑦ the dry ingredients ⑧ the milk ⑨ to]

