

# 令和 2 年度 入学 試験 問題

## 外 国 語

### 英 語

150 点 満 点

◀配点は、一般入試学生募集要項に記載のとおり。▶

#### (注 意)

1. 問題冊子および解答冊子は監督者の指示があるまで開かないこと。
2. 問題冊子は表紙のほかに 8 ページ、解答冊子は表紙のほかに 8 ページある。
3. 問題は全部で 4 題ある(1～8 ページ)。
4. 試験開始後、解答冊子の表紙所定欄に学部名・受験番号・氏名をはっきり記入すること。表紙には、これら以外のことを書いてはならない。
5. 解答は、すべて解答冊子の指定された箇所に記入し、解答欄におさめること。
6. 解答に関係のないことを書いた答案は無効にすることがある。
7. 解答冊子は、どのページも切り離してはならない。
8. 問題冊子は持ち帰ってもよいが、解答冊子は持ち帰ってはならない。





I

次の文章を読み、下の設問(1)~(3)に答えなさい。

(50点)

Various doctrines of human cognitive superiority are made plausible by a comparison of human beings and the chimpanzees. For questions of evolutionary cognition, this focus is one-sided. Consider the evolution of cooperation in social insects, such as the Matabele ant. After a termite attack, these ants provide medical services. Having called for help by means of a chemical signal, injured ants are brought back to the nest. Their increased chance of recovery benefits the entire colony. Red forest ants have the ability to perform simple arithmetic operations and to convey the results to other ants.

When it comes to adaptations in animals that require sophisticated neural control, evolution offers other spectacular examples. The banded archerfish is able to spit a stream of water at its prey, compensating for refraction at the boundary between air and water. It can also track the distance of its prey, so that the jet develops its greatest force just before impact. Laboratory experiments show that the banded archerfish spits on target even when the trajectory of its prey varies. Spit hunting is a technique that requires the same timing used in throwing, an activity otherwise regarded as unique in the animal kingdom. In human beings, the development of throwing has led to an enormous further development of the brain. And the archerfish? The calculations required for its extraordinary hunting technique are based on the interplay of about six neurons. Neural mini-networks could therefore be much more widespread in the animal kingdom than previously thought.

Research on honeybees has brought to light the cognitive capabilities of minibrains. Honeybees have no brains in the real sense. Their neuronal density, however, is among the highest in insects, with roughly 960 thousand neurons — far fewer than any vertebrate. Even if the brain size of honeybees is normalized to their body size, their relative brain size is lower than most

vertebrates. Insect behavior should be less complex, less flexible, and less modifiable than vertebrate behavior. But honeybees learn quickly how to extract pollen and nectar from a large number of different flowers. They care for their young, organize the distribution of tasks, and, with the help of the waggle dance, they inform each other about the location and quality of distant food and water.

Early research by Karl von Frisch suggested that such abilities cannot be the result of inflexible information processing and rigid behavioral programs. Honeybees learn and they remember. The most recent experimental research has, in confirming this conclusion, created an astonishing picture of the honeybee's cognitive competence. Their representation of the world does not consist entirely of associative chains. It is far more complex, flexible, and integrative. Honeybees show context-dependent learning and remembering, and even some forms of concept formation. Bees are able to classify images based on such abstract features as bilateral symmetry and radial symmetry; they can comprehend landscapes in a general way, and spontaneously come to classify new images. They have recently been promoted to the set of species capable of social learning and tool use.

In any case, the much smaller brain of the bee does not appear to be a (c) fundamental limitation for comparable cognitive processes, or at least their performance. The similarities between mammals and bees are astonishing, but they cannot be traced to homologous neurological developments. As long as the animal's neural architecture remains unknown, we cannot determine the cause of their similarity.

- (1) 下線部(a)の具体例として、このパラグラフではテッポウウオが獲物に水を噴射して狩りをする能力が紹介されている。その能力の特長を3点、日本語で箇条書きにしてください。
- (2) 下線部(b)でいう minibrains とは、ミツバチの場合、具体的にはどのような意味で用いられているか。本文に即して日本語で説明してください。
- (3) 下線部(c)を和訳してください。

# 白 紙

II 次の文章は、自ら「インディアン」としての誇りを持つアメリカ先住民の著者が、北アメリカ大陸における自分たちの歴史について語ったものである。これを読み、下の設問(1)~(2)に答えなさい。(50点)

Despite the variety of tribal belief (or perhaps in part because of it), North America is uniformly seen as an Indian homeland that has shaped and been shaped by the Indians living there then and living there now. Over these homelands various empires and nation-states — Spanish, British, French, Dutch, and, later, American — have crawled, mapping and claiming as they went. But neither these maps nor the conquests enabled by them eradicated or obscured the fact that immigrants made their homes and villages and towns and cities *on top of* Indian homelands. Any history that persists in using the old model of New World history as something made by white people and done to Indian people, therefore, is not a real history of this place. Rather, as the historian Colin Calloway has suggested, history didn't come to the New World with Cabot or Columbus; they — and those who followed — brought European history to the unfolding histories already here.

When Europeans first arrived on the Atlantic coast, they landed on a richly settled and incredibly fecund homeland to hundreds of tribes. When prehistoric first Indians emerged in what is now the eastern United States, the water levels were considerably lower than they are now, because much of the world's water was trapped in glaciers that spread across a large part of the Northern Hemisphere. Because of this, coastal archaeology has uncovered only a very fractured record of habitation.<sup>(a)</sup>

Even so, five-thousand-year-old shell middens in Florida and North Carolina suggest vibrant coastal cultures in this region. In Virginia alone there are thousands of known prehistoric village sites. How these early tribes were organized or how they understood themselves is hard to know. What made for a relatively easy life — abundant rivers, streams, and springs, plentiful fuel,



fairly constant aquatic and terrestrial food sources, and a relatively mild climate — makes for bad archaeology. It seems that, in this early period, coastal Indians lived in small villages of about 150 people and that they were fairly mobile, spending part of the year on the coast, part farther inland, and getting most of their calories from fish and game and opportunistic harvests of nuts and berries. Populations seem to have risen and shrunk like the tide, depending on the availability of calories. Archaeological evidence suggests that between 2500 and 2000 BCE, tribal groups began making clay pots, which indicates a more sedentary lifestyle, the need for storage (which in turn suggests that there were food surpluses), and a greater reliance on plants for sustenance. A bit later eastern coastal and woodland Indians were planting or cultivating sunflowers, lamb's-quarter, gourds, goosefoot, knotweed, and Jerusalem artichokes.

When Ponce de León arrived in Florida in 1513, with explicit permission from the Spanish crown to explore and settle the region, Indians had been living there for at least twelve thousand years. Because of the lower water levels, during prehistoric times Florida's land mass was double what it is today, so much of the archaeological evidence is under the sea. It was also much drier and supported all sorts of megafauna such as bison and mastodon. As megafauna died out (climate change, hunting), the fruits of the sea in turn supported very large Archaic and Paleolithic societies. Agriculture was late in coming to Florida, appearing only around 700 BCE, and some noncoastal Florida tribes still had no forms of agriculture at the time of Spanish conquest. Presumably the rich fresh and brackish water ecosystems were more than enough to support a lot of different peoples. What the Spanish encountered beginning in 1513 was a vast, heterogeneous collection of tribes, among them the Ais, Alafay, Amacano, Apalachee, Bomto, Calusa, Chatot, Chine, Guale, Jororo, Luca, Mayaca, Mayaimi, Mocosó, Pacara, Pensacola, Pohoy, Surruque, Tequesta, Timicua, and Viscayno, to name but a few.

(1) 下線部(a)の理由を，第2パラグラフおよび第4パラグラフの内容にもとづき，日本語でまとめなさい。

(2) 下線部(b)の理由を，第3パラグラフの内容にもとづき，日本語でまとめなさい。

Ⅲ 次の文章を英訳しなさい。

(25 点)

お金のなかった学生時代にはやっとの思いで手に入れたレコードをすり切れるまで聴いたものだ。歌のタイトルや歌詞も全部憶えていた。それが今ではネットで買ったきり一度も聴いていない CD やダウンロード作品が山積みになっている。持っているのに気付かず、同じ作品をまた買ってしまうことさえある。モノがないからこそ大切にするというのはまさにその通りだと痛感せずにいられない。

Ⅳ 大学生の吉田さんが海外の大学へ留学しようとしている。吉田さんになったつもりで、担当者に奨学金についての問い合わせをする丁寧な文章を、解答欄におさまるように英語で作成しなさい。

(25 点)

問題は、このページで終わりである。









