滋賀医科大学

平成24年度
医学科(前期日程)入学試験問題

英　　語

(注　意)

1. 問題冊子は試験開始の合図があるまで開かないこと。
2. 問題冊子は表紙のほか8ページである。
3. 試験中に問題冊子及び解答用紙の印刷不鮮明，ページの落丁・乱丁等に気付いた場合は，手を挙げて監督者に知らせること。
4. 解答用紙のすべてに受験番号及び氏名をはっきり記入すること。
5. 解答はすべて解答用紙の所定の解答欄に明瞭に記入すること。
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. 本学受験票を机の右上に出しておくこと。
8. 試験時間は90分である。
9. 問題冊子は持ち帰ってもよいが，解答用紙は持ち帰らないこと。

英　　語（3問題）

Ⅰ．次の英文は，ある種の動物の鳴き声に関する研究について書かれている。これを読んで，下の設問に答えよ。右肩に＊印のある語(句)には注がある。(配点 70)

In late 1925, one J. L. Clark discovered an unusual mouse in a house in Detroit. It could sing. So he did what anyone might have done: he captured the mouse and put it in a cage. There it produced a lyrical* tune as if it were a bird. A musician named Martha Grim visited the mouse, commented on the impurity* of its tones and left, musical standards being high in Detroit. Clark gave the mouse to scientists at the University of Michigan. The scientists confirmed that the mouse could sing and (1) then bred it with laboratory house mice. Some offspring produced a faint vocal sound, but none inherited the father's melodic singing. These observations were all noted in a scientific article in 1932 and mostly forgotten.

Recently, though, Matina Kalcounis-Rueppell, a biologist at the University of North Carolina revisited the mystery of the singing mouse, and after figuring out how to listen to mice on their own terms, she heard something entirely new. When Kalcounis-Rueppell was 19, she studied bat* behavior. It led her outside at night, and she never really came back in. She is now a behavioral ecologist, an expert in how animals use sound. By now she has spent thousands of hours working at night in forests. She became an expert on animal and insect sounds, but every so often, she would hear sounds she could not identify.

Kalcounis-Rueppell suspected that some of the sounds she heard at night might be coming from mice. She knew that a singing mouse, like the one in Detroit, had occasionally been reported in the scientific literature, and that lab mice sometimes make sounds too high to be heard by human ears, but such high-pitched* sounds had never been studied in the wild. While she was conducting research in Monterey County, California, at a site where she had been working since 1996, she wondered if local mice were calling all around her, perhaps even talking quietly about her presence. (2) On some nights, she thought she heard them, at the edge of her ability to hear, the way a sailor might perceive land just over the horizon.

In 2004, Kalcounis-Rueppell and a friend borrowed hand-held recorders capable of recording high-pitched sounds and took them to her California field site. She had already captured, marked and released many of the mice there as part of a study on their behavior. She knew the individuals by name, or at least by the numbers she had given them on little tags attached to their ears. She also knew where they lived. She put microphones in their territories and waited.

After a long night, the researchers took the equipment back to the lab and listened to the recordings through headphones at a slow speed, which lowered the frequency of the sounds. If they found any unusual sounds, they used a computer to convert the recording into a graphic pattern showing the sounds' frequency.

One of Kalcounis-Rueppell's colleagues heard something unusual, something loud. They analyzed the sound on the computer and saw a pattern that was entirely new, the four-note song of what would prove to be a deer mouse. Played back at slow speed, it sounded a little like the mating song of a whale, a sad rise and fall.

Kalcounis-Rueppell has now translated the high-pitched vocal sounds of the wild mice from her first study site and is working on their Eastern North American relatives. Her research and that of others suggest that some songs are produced only by males or only by females. There are even greater differences from one species to the next. Perhaps these differences help the mice tell each other apart. Some species' songs get more complex as a mouse grows older. The songs may be inherited; young mice raised in the laboratory by mice of a different strain retain their own strain's song. Kalcounis-Rueppell and her students have evidence of such songs in four wild species and suspect that many others sing. The world of rodents,* long thought mostly quiet, may be full of songs, broadcast short distances, from one animal to another, songs that we still know very little about.

Her discovery reminds us that each species perceives the world in a unique way, with a finely tuned set of senses, and so finds itself in a slightly different world. Mosquitoes detect the CO_2 we breathe out. Turtles find their way around using the earth's magnetic field. Birds see ultraviolet* markings on flowers, signs invisible to us. Snakes home in on the heat in a cougar's (American lion's) footprint or a rabbit's breath. (3) Most of these different worlds are little understood because of the narrow reach of our own perceptions. Kalcounis-Rueppell hears music in the dark, (4) but as a species we still lack the ability to sense many things.

(出典 "The Mystery of the Singing Mice" www.smithsonianmag.com/science-nature/The-Mystery-of-the-Singing-Mice.html?c=y&story=fullstory より改変引用。)

注 lyrical = 抒情詩調の，高揚した
impurity = 不純物，混じりもの
bat = こうもり
high-pitched =(音・声が)調子の高い，甲高い
rodent(s) = げっ歯類の動物(mice，rats，rabbits など)
ultraviolet = 紫外線

設問 1　下線部 (1) について，なぜ科学者たちはこのような実験をおこなったのか，説明せよ。

設問 2　Matina Kalcounis-Rueppell が以前の科学者が発見し得なかったことを見つけ出せたのは彼女のどのような生活背景が貢献したのか，簡潔に述べよ。

設問 3　下線部 (2) を日本語に訳せ。

設問 4　Kalcounis-Rueppell が野生のマウスから鳴き声を録音した手法を説明せよ。

設問 5　Kalcounis-Rueppell によって発見された，マウスの鳴き声に関する新事実を三つ挙げて，簡潔に説明せよ。

設問 6　下線部 (3) を日本語に訳せ。

設問 7　下線部 (4) について，as a species という言葉に着目して，われわれに欠けている能力について三つの例を挙げて説明せよ。

次のページにも英語の問題があります。

Ⅱ．次の英文は，社会の不平等に関してのある見解を述べたものである。これを読んで，下の設問に答えよ。右肩に＊印のある語(句)には注がある。(配点 80)

In the Paleolithic* era, which accounts for most of human history, few differences of wealth, power, or social status separated individuals from one another. Hunter-gatherer communities lived mobile lives, moving from camp to camp and carrying all their possessions with them. Individuals or families might possess lightweight objects, such as ornaments or weapons, but they did not accumulate large amounts of material goods because they simply could not carry them around.

Much more important to these communities were networks of family and friends, knowledge of the environment, rights to use land, and rituals. All these elements of culture were easy to carry around. Besides, hunter-gatherers knew that they did not have to store up goods because the food and other materials they needed were all around them. (1) The idea of personal wealth had little meaning.

When settled agricultural communities emerged about 10,000 years ago, however, the rules began to change. Unlike foragers* who collected their food when they needed it, farmers harvested their crops once or twice a year and then had to store them someplace. Because they stayed in one place most of the year, farmers had no problems storing things. However, as individuals began to accumulate stored wealth and to live in larger, denser settlements, they had to confront the question of who had the right to consume supplies of wealth. An individual might wonder, "Can I just break into my neighbor's grain store if I feel hungry?" The idea of personal "ownership" became more important and more complex.

In principle, people might have thought that everyone should have an equal share of whatever was available. In small farming communities, rough equality in access to resources was probably workable. In no community, however, were resources distributed exactly equally. In practice, as members of societies accumulated more and more wealth, distribution of resources became less and less even.

Today, the distribution of the world's wealth is more uneven than ever before. Some individuals and groups have become extremely wealthy, while others have become poorer. Today, these imbalances are global. In 1998, individuals living in the world's richer countries spent on average about $16,000 on consumption. In South Asia and sub-Saharan Africa they spent about $350.

Why has wealth been distributed so unevenly since the appearance of farming societies? Why have some people lived in astonishing luxury and others in grinding poverty(2)? These are two of the most important questions we can ask about the history of the past 10, 000 years.

In the last 10, 000 years, the distribution of wealth and the exercise of power have been closely linked. As people started living together in large communities, they had to accept leaders to coordinate the activities of the group as a whole. Those leaders had to be given power over people, but they also needed control over the community's wealth in order to manage large projects, especially construction and warfare.

In studies of many different types of human communities, researchers have shown that, as groups get larger and more complex, their wealth tends to get distributed more and more unequally. In rural villages of no more than a few hundred people, inequalities cannot be that(3) great. Even in them, however, some families tend to have access to more wealth than others, perhaps because they work harder, have bigger families, or control better land.

In larger societies, households may willingly give up some of their wealth to priests or chiefs, who then reserve part of it for group tasks such as making peace with the gods, building monuments, or fighting neighbors. In this way, leaders end up controlling more wealth than most other people do. Leaders may even treat some people as their property, that is, as slaves. For most of history, human labor has been the main source of energy. Therefore, controlling slaves was like controlling oil or coal today.

Eventually, leaders started using the wealth they controlled to pay for personal bodyguards, attendants, gangs of "enforcers,"* and even armies. Once they had this "muscle,"(4) they could often impose their will on other members of the community, putting down anyone who resisted their rule. Therefore, it is no wonder that until recent centuries the wealthy have almost always been the most powerful, and the powerful leaders have almost always lived much more comfortably than those over whom they rule.

(出典 "Haves and Have-Nots," http://worldhistoryforusall.sdsu.edu/themes/keytheme 4.htm より改変引用。)

注 Paleolithic = 旧石器時代の
forager(s) = 狩猟や採集によって食物を得る人々
gangs of "enforcers" = (武器を持った)用心棒

設問 1　旧石器時代は人々の間で「富，権力，社会的地位」にほとんど差が無かったのはなぜか，簡潔に説明せよ。

設問 2　下線部 (1) について，簡潔に説明せよ。

設問 3　狩猟採集から農業への転換において，人口密度が変化した背景を，簡潔に述べよ。

設問 4　農業社会が形成された後，所有物をめぐっていかなる問題が発生したと述べられているか，簡潔に説明せよ。

設問 5　下線部 (2) の “grinding poverty” について，説明せよ。

設問 6　下線部 (3) を，日本語に訳せ。

設問 7　この文章全体を通してみた，富と権力の関係を簡潔に説明せよ。

設問 8　下線部 (4) の “muscle” とは何か，説明せよ。

Ⅲ． 人類の発明を一つ挙げ，その出現がわれわれの生活に与えた影響について，特に人間関係に着目して，100–120 語程度の英文で論ぜよ。(配点 50)