次の英文を読み、設問に答えなさい。

東京大学〔レベル：4.3/5.0〕〔制限時間：20 分〕

次の英文中に論じられている事例から一般的にどのようなことが言えるか。60～70字の日本語で記せ。句読点も字数に含める。

Chess masters can exhibit remarkably memory for the location of chess piece on a board. After just a single five-second exposure to a board from an actual game, international masters in one study remembered the locations of nearly all twenty-five pieces, whereas beginners could remember the locations of only about four pieces. Moreover, it did not matter whether the masters knew that their memory for the board would be tested later; they performed just as well when they glanced at a board with no intention to remember it. But when the masters were shown a board consisting of randomly arranged pieces that did not represent a meaningful game situation, they could remember no more than the beginners.

Experienced actors, too, have extraordinary memory within their field of specialized knowledge; they can remember lengthy scripts with relative ease, and the explanation for this is much the same as in the case of the

chess masters. Recent studies have shown that rather than attempting word-by-word memorization, actors analyze scripts for clues to the motivations and goals of their characters, unconsciously relating the words in them to the whole of their knowledge, built up over many years of experience; memorization is a natural by-product of this process of searching for meaning. As one actor put it, “I don’t really memorize. There’s no effort involved...it just happens. One day early on, I know the lines.” An actor’s attempt to make sense of a script often involves extended technical analyses of the exact words used by character, which in turn encourages precise recall of what was said, not just the general sense of it.

次の英文を読み、設問に答えなさい。

神戸大学・改題〔レベル：4.2/5.0〕〔制限時間：40 分〕

① In the animal kingdom, specific *traits distinguish one *group of animals from another. The *beaks and feathers of birds, for example, set them apart from *mammals and *amphibians. Furthermore, *variations in those traits *differentiate one kind of bird from another. For instance, *ducks have long, wide and flat beaks, and *geese have shorter, thinner and taller beaks. Nonetheless, birds also *share many features — eyes, feet, legs, a tail and so on — with many mammals and amphibians. (1)What allows some traits to vary so greatly, while other features remain relatively similar across a wide range of animals?

＊trait：〔生物学〕特徴、形質　＊group：〔生物学〕群　＊beaks：くちばし
＊mammals：哺乳類　＊amphibians：両生類
＊variation：変異、変化　＊differentiate A from B：A を B と区別・区分する
＊duck：アヒル　＊geese：ガチョウ　＊share A with B：A を B と共有する

設　問１：下線部(1)を和訳しなさい。

② Some might say that a shared evolutionary history creates similarities, and adaptive responses to selective forces trigger differences. This answer provides some insight, but it does not explain all of nature's variation. (2)Similar traits can arise independently in different animal *lineages. For example, many biologists point to the *development of human and octopus eyes. Both eyes have an eyelid, *iris, lens, *pupil and *retina, but they are formed by completely different mechanisms. The human eye is an extension of the brain, whereas an *inward pocketing of the skin creates the octopus eye. Functionally, these eyes differ as well. The focal length of the octopus lens is fixed; the octopus focuses by moving the entire lens. In humans, changing the shape of the lens *focuses the eye on objects at varying distances.

＊lineages：系統・血統　＊development：〔生物学〕遺伝子などの発生・発現
＊iris：（眼球の）虹彩　＊pupil：瞳孔　＊retina：網膜
＊inward pocketing：陥没　＊focus A on B：A を B に焦点を当てる

設　問２：下線部⑵はどのようなことを言っているのか。本文の内容に即して 50 字程度の日本語で説明しなさい。

③　Although many evolutionary modifications could arise, not all outcomes are equally *feasible.　For instance, some traits are not possible in specific animals because of their developmental toolkit.　Developmental toolkits can be *compared to *Lego building blocks, because both dictate what can be built.　(3)A standard set of rectangular blocks, for example, can *serve as building material for many unique structures, but nothing with truly rounded edges.　In the same way, an organism *relies on limited developmental processes, pathways and interactions.

＊feasible：実行可能な
＊compare A to B：A を B に例える
＊Lego building blocks：（玩具の）レゴ・ブロック
＊serve as～：～として役立つ、機能する
＊rely on～：～に依拠する・基づく

設　問３：下線部(3)を和訳しなさい。

④ Every living animal fits one of 35 distinct shapes, or body plans, all of which originated in *the Cambrian period around 500 million years ago. Because these new animal shapes appeared relatively rapidly, the event is *referred to as the Cambrian explosion. In this case, “rapid” is based on an evolutionary timescale; the explosion occurred over a period of at least 5 to 10 million years.

⑤ Even after many millions of years — about 10 times as long as the Cambrian explosion itself — no new body plans have evolved, despite major changes, including the movement from living in water to living on land. Consequently, developmental processes might *constrain the possibilities.

＊the Cambrian period：カンブリア紀
＊refer to A as B：A を B と呼ぶ
＊constrain：制約する

設　問４：第４～第５パラグラフの内容を 150 字程度の日本語で説明しなさい。

⑥ For one thing, structural constraints *impede some forms. Consider the fictional King Kong, a scaled-up version of a gorilla. All of his proportions are the same as a normal gorilla, but his overall size is much larger. In real animals, the structural properties of bone limit the size and proportions of the creatures, especially ones that live on land. Here's a simplified mathematical explanation of Kong's impossibility based only on the thigh bone.

⑦ Let's say that King Kong is five times taller than a normal-sized gorilla. A bone's strength depends on its *cross-sectional area, which is a function of the square of its *radius. King Kong's thigh bone is five times bigger in all *dimensions, including its radius, so its strength will be increased by 5^2, or 25. King Kong's volume, on the other hand, varies according to length and cross-sectional area, which means that it increases by 5^3, or 125. With this giant gorilla's weight increasing five times more than his strength, his legs would be crushed. Such a *discrepancy between strength and weight would apply to the rest of Kong's body as well. So apes could increase in size, but structural *constraints *impose limits.

＊impede：排除する　＊cross-sectional area：断面積　＊radius：半径
＊dimensions：次元　＊discrepancy：不一致、食い違い　＊constraint：制約
＊impose：（義務・罰・税などを）課す、賦課する

設　問５：第６～第７パラグラフにおいて、キング・コングの背の高さが普通のゴリラの５倍だとして、それが現実にはあり得ないと言える構造上の理由を、本文の内容に即して 50 字程度の日本語で説明しなさい。

次の英文を読み、設問に答えなさい。

京都大学・改題〔レベル：5.0/5.0〕〔制限時間：60 分〕

In the Greek peninsula early in the fifth century B.C., there emerged a group of individuals, many of them with beards, who were singularly free of the anxieties about status that tormented their contemporaries. These philosophers were untroubled by either the psychological or the material consequences of a humble position in society; they remained calm in the face of insult, disapproval and poverty. When Socrates saw a pile of gold and jewelry being borne in procession through the streets of Athens, he exclaimed, “Look how many things there are which I don’t want.” When Alexander the Great passed through Corinth, he visited the philosopher Diogenes and found him sitting under a tree, dressed in rags, with no money to his name. Alexander, the most powerful man in the world, asked if he could do anything to help him. “Yes,” replied the philosopher, “if you could step out of the way. You are blocking the sun.” Alexander’s soldiers were horrified, expecting an outburst of their commander’s famous anger. But Alexander only laughed and remarked that (1)if he were not Alexander, he would certainly like to be Diogenes. Antisthenes was told that a great many people in Athens had started to praise him. “Why,” he answered, “what have I

done wrong?" (2)Empedocles had a similar regard for the intelligence of others. He once lit a lamp in broad daylight and said, as he went around, "I am looking for someone with a mind." (3)Having watched Socrates being insulted in the market place, a passer-by asked him, "Don't you worry about being called names?" "Why? Do you think I should resent it if a stupid horse kicked me?" replied Socrates.

It was not that these philosophers had ceased to pay any attention to a distinction between kindness and ridicule, success and failure. (4)They had merely settled on a way of responding to the darker half of the equation that owed nothing to the traditional honour code, and its suggestion that what others think of us must determine what we can think of ourselves, and that every insult, whether accurate or not, must shame us.

(5)Philosophy introduced a new element to the relationship with external opinion, what one might visualize as a box into which all public perceptions, whether positive or negative, would first have to be directed in order to be assessed, and then sent on to the self with renewed force if they were true, or ejected harmlessly into the atmosphere to be dispensed with a laugh or a shrug of the shoulders if they were false. The philosophers termed the box "reason."

According to the rules of reason, a given conclusion is to be deemed true if, and only if, it flows from a logical sequence of thoughts founded on sound initial premises. Considering mathematics to be the model of good thinking, philosophers began to search for an approximation of its objective certainties in ethical life too. Thanks to reason, our status could — philosophers proposed — be settled according to an intellectual conscience, rather than being abandoned to the whims and emotions of the market square. And (6)if rational examination revealed that we had been unfairly treated by the community, philosophers recommended that we be no more bothered by the judgement than we would be if we had been approached by a confused person bent on proving that two and two amounted to five.

設　問１：下線部⑴はどういうことを言っているのか、50 字程度の日本語で説明しなさい。

設　問２：下線部⑵はどういうことを言っているのか、50 字程度の日本語で説明しなさい。

設　問３：下線部⑶はどういうことを言っているのか、50 字程度の日本語で説明しなさい。

設　問４：下線部⑷を和訳せよ。

設　問５：下線部⑸を和訳せよ。

設　問６：下線部⑹を和訳せよ。