

デザイン工学部A方式 I 日程・理工学部A方式 I 日程
生命科学部A方式 I 日程

1 限 英 語 (90 分)

〈注意事項〉

1. 試験開始の合図があるまで、問題冊子を開かないこと。
2. 解答はすべて解答用紙に記入しなさい。
3. マークシート解答方法については以下の注意事項を読みなさい。

マークシート解答方法についての注意

マークシート解答では、鉛筆でマークしたものを機械が直接読みとって採点する。したがって解答は HB の黒鉛筆でマークすること(万年筆, ボールペン, シャープペンシルなどを使用しないこと)。

記入上の注意

1. 記入例 解答を 3 にマークする場合。

(1) 正しいマークの例



(2) 悪いマークの例



枠外にはみださないこと。

○でかこまないこと。

2. 解答を訂正する場合は、消しゴムでよく消してから、あらためてマークすること。
3. 解答用紙をよごしたり、折りまげたりしないこと。
4. 問題に指定された数よりも多くマークしないこと。

[I] つぎの英文を読み、設問に答えよ。

Mothers have a crucial role to play in the fight against hunger. As a child's first and most important source of nourishment, strong and healthy mothers are the best guarantee of strong and healthy children. That's why WFP^{注1} does its utmost to support weak mothers and their children. In fact, every year, around 80% of WFP's food aid goes to help them. As many countries celebrate Mother's Day, we're highlighting four ways in which food assistance can help a mother.

The first way is by nourishing her and her child. Malnourished^{注2} mothers frequently give birth to underweight babies. Underweight babies are 20 times more likely to die before they reach the age of five than heavier babies. Proper nutrition^{注3} in the first two years means kids avoid possible damage to their physical growth and mental development.

The second is by helping her live with HIV/AIDS. Malnutrition^{注2} makes the effects of HIV worse and hastens AIDS-related illness. Adults with HIV need up to 30% more energy than a healthy adult without HIV. It costs only US\$0.87 per day to give an HIV-positive mother and her newborn baby the nutritious food they need.⁽²⁾

The third is by giving her training or work. About two-thirds of the 776 million adults who lack basic reading and writing skills are women. The UN Development Fund for Women lists training and work as a key route to make women stronger. In 2009, 2.1 million women received WFP food while they participated in training or community work projects.

The fourth is by keeping her child in school. 75 million school-age children do not attend school. Parents in poor countries often don't send kids to school so they can help earn money for food. In Kenya, school attendance is 28% higher in schools that have meal programs than in those without them. WFP runs school meal programs in over 68 countries that benefit some 22.6 million

children around the world.

In Congo, a teacher and mother of three, Mrs. Kambere knows ⁽³⁾first-hand the effect WFP school meals can have on a schoolroom. She's seen her own classroom swell with lively students who now have the strength to concentrate on school work.

Mrs. Kambere says her children are making tremendous ⁽⁴⁾strides since they began receiving school meals six months ago. Without hunger pains to distract them, their minds are free to learn. But the benefits of school feeding don't stop at the classroom. Back at home, they take the form of doctor visits, clean clothes, and other basic ⁽⁵⁾necessities that finally ⁽⁶⁾fit inside the Kambere family budget. "I used to spend US \$3.00 a day on lunch for my three kids," says Mrs. Kambere. "Now I can put that money aside."

Saving on the cost of three meals a day can make a tremendous difference for many Congolese families, who spend around 40% of their income just to ⁽⁷⁾stay fed. "I no longer have to worry about preparing lunch for my kids, because they've already eaten at school. Instead of making lunch for five people, now I only have to prepare it for my husband and myself," she said.

There are over 600 students in this primary school in eastern Congo, where too much farming has destroyed the local banana crop. An education, like the one WFP school meals help to make possible, offers children the surest route to a better life.

"In the past, our kids were ⁽⁸⁾reluctant to come to school. They were always late and my colleagues and I had to shout every day to get them into class." Now, Mrs. Kambere says her classroom is always full and her students are doing better than ever.

注1 WFP : World Food Programme 国連食糧計画

注2 malnourished / malnutrition : 栄養不良の/栄養不良

注3 nutrition : 栄養

1. つぎのイ～ヌの英文の中から、本文の内容に最も合っている文を三つ選んで、その記号を解答用紙にマークせよ。

- イ Foreign assistance to Congo brought about tremendous success in reducing the number of adults affected by HIV/AIDS.
- ロ There are more children who receive meals from the WFP programs than school-age children who do not attend school all over the world.
- ハ In order for children to grow well physically and mentally, good meals in their early years are crucial.
- ニ Mothers of underweight babies should stay home all day taking care of them, rather than work outside the home.
- ホ Hunger-free children have been doing much better in classrooms since school meal programs were introduced.
- ヘ Parents in poor countries are not interested in sending their children to school, because they don't think education helps to create a better life.
- ト WFP's school food program is criticized for not being offered in countries with the most urgent needs.
- チ It is very important that men have basic literacy, because they are the principal income earners in poor countries.
- リ School meal programs make it possible for many families to save money for basic needs other than food.
- ヌ In many provinces in Congo, droughts caused very poor banana harvests in recent years.

2. 下線部(1)~(8)の語句の意味において、文脈に照らして最も適しているものをそれぞれイ~ニから一つ選び、その記号を解答欄にマークせよ。

(1) utmost

イ last

□ best

ハ job

ニ duty

(2) positive

イ infected

□ supportive

ハ related

ニ familiar

(3) first-hand

イ well

□ vaguely

ハ directly

ニ precisely

(4) strides

イ strikes

□ work

ハ stresses

ニ progress

(5) necessities

イ requirements

□ luxuries

ハ commons

ニ products

(6) fit inside

イ look into

□ fall within

ハ exchange with

ニ put aside

(7) stay fed

イ pay rent

□ grow up

ハ have meals

ニ gain weight

(8) reluctant

イ delighted

□ interested

ハ unwilling

ニ invited

〔Ⅱ〕 つぎの英文を読み、設問に答えよ。

One day in the middle of winter, I looked out my back window and saw a chicken. It was black with a bright red wattle^{注1}, and it seemed unaware that it was in New York City. In classic fashion, it was scratching, pecking and clucking^{注2}. At first I ignored it. Birds come and go. Or so I thought.

How this chicken came to my small backyard in New York City remains a mystery. It made its first appearance next door. My wife and I figured that the neighbors had bought the chicken and were fattening it for their dinner. That idea fell into doubt when the chicken jumped the fence into our yard and stayed.

Eating it was out of the question. As a restaurant critic and an animal lover, I subscribe to a policy of complete hypocrisy. Serve fish or chicken to me, but don't ask me to watch the killing. Once I meet it, I don't want to eat it.

Next we assumed that the chicken had escaped from a nearby live-chicken market and was on the run. Our hearts went out to the brave little refugee. We had to save it.

Of course we knew nothing about raising chickens. A colleague put me in touch with a farmer who told me that chickens will eat just about anything, can survive the cold, and don't need a house. Chickens were beginning to sound like the ideal pet.

The chicken took to its new surroundings easily. Its main social task was to integrate into the local cat society — a group of about five strays we feed. How would the two species deal with each other?

One morning I looked out the window and saw four cats lined up at their food bowls and right in the middle, eating cat food with enthusiasm, was the chicken. Occasionally it would push a cat aside to get a better position. The two sides soon achieved parity. Sometimes I'd look out back and see a cat

chasing the chicken. Ten minutes later I'd see the chicken chasing a cat. I'd like to think they reached a stage of mutual respect. Perhaps affection.

Although it was nice to know the chicken could eat anything, cat food didn't seem right. When the pet store staff couldn't help, I did what any mature adult male would do in a crisis. I called my mother. Mom drove to the local feed store in rural Texas and picked up a 10 kilo bag of chicken feed. She began shipping us the grain in small quantities.

Our care paid off. One morning, I spied an egg on the porch. At the base of the pine tree, where the chicken slept, was a nest containing four more eggs. They were small, but soon we could count on five or six eggs a week.

After I wrote about the chicken for my newspaper column, my mailbox was bursting with letters offering advice on the proper care of chickens. Disturbed that she did not have a name, fans wrote with suggestions. The media jumped in. A radio station quizzed me about the chicken for one of its weekend programs. A magazine sent a photographer to capture the chicken's many moods. (It had two.)

Then one morning I looked out my kitchen window, and my heart stopped. No chicken — not in my pine tree or the tree next door. But why? Spring was in the air. Could she be looking for love? Or perhaps she was reacting badly to being a media star? Or maybe she was simply looking for a place to lay her eggs in peace.

And I am left cherishing the memories.

注1 wattle : 肉垂(にわたりのほおから垂れている部分)

注2 clucking : こっこつと鳴っていた

1. 本文の(1)~(5)の単語において、もっとも強く発音する分節の位置を、それぞれに対応する数字から一つ選び、その数字を解答用紙にマークせよ。また、それと同じ位置の分節で最も強く発音する単語を、つぎのイ~ニから一つ選び、その記号を解答用紙にマークせよ。

(1) res-tau-rant
1 2 3

イ ec-cen-tric

ハ per-ma-nent

□ sub-stan-tial

ニ com-mit-tee

(2) sur-round-ings
1 2 3

イ jus-ti-fy

ハ mon-i-tor

□ con-tin-ue

ニ ra-tion-al

(3) in-te-grate
1 2 3

イ i-ni-tial

ハ ap-point-ment

□ con-struct-ive

ニ tech-ni-cal

(4) oc-ca-sion-al-ly
1 2 3 4 5

イ con-tem-po-rar-y

ハ com-mu-ni-ca-tion

□ ca-pa-bil-i-ty

ニ me-tro-pol-i-tan

(5) pho-tog-ra-pher
1 2 3 4

イ prop-a-gan-da

ハ ex-pla-na-tion

□ tele-vi-sion

ニ ex-pe-ri-ence

2. 下線部(a)～(g)の言い換えとして最も適当な語(句)をそれぞれイ～ニから一つ選び、その記号を解答用紙にマークせよ。

(a) fattening

イ putting up with

ロ dividing

ハ admitting

ニ adding weight to

(b) subscribe to

イ contribute

ロ maintain

ハ determine

ニ lighten

(c) took to

イ laid off

ロ adapted to

ハ live up to

ニ shook off

(d) parity

イ flexibility

ロ accuracy

ハ equality

ニ efficiency

(e) spied

イ provided

ロ ran over

ハ introduced

ニ discovered

(f) Disturbed

イ Annoyed

ロ Surprised

ハ Excited

ニ Concerned

(g) cherishing

イ making light of

ロ making way for

ハ appreciating

ニ rejecting

3. つぎの(1)～(4)の問の答として最も適当なものをそれぞれイ～ニから一つ選び、その記号を解答用紙にマークせよ。

(1) Why did the author keep the chicken as a pet?

イ He received it as a present from the neighbors.

ロ He wanted it to get rid of the strays in his neighborhood.

ハ He felt sorry for it.

ニ He was worried the neighbors would eat it.

(2) What is **not** a reason that chickens are ideal pets?

イ Colleagues can put farmers in touch with them.

ロ They can sleep outside.

ハ Freezing weather does not affect them.

ニ There is almost nothing they will not eat.

- (3) Which statement about the relationship between the chicken and cats is true?
- イ In the end, the cats and chicken respected and liked each other.
 - ロ It took a long time for the chicken to be accepted by the cats.
 - ハ It was more difficult for the cats to adjust to the chicken than the chicken to adjust to the cats.
 - ニ Neither the cats nor the chicken dominated each other.
- (4) What is **not** a possible reason given by the author for the chicken leaving?
- イ Public attention was too much for her.
 - ロ She began looking for a mate.
 - ハ The spring air did not suit the chicken.
 - ニ She wanted a quieter place to lay her eggs.

4. 本文で述べられている内容と一致する英文をイ～トから二つ選び、その記号を解答用紙にマークせよ。

- イ The chicken escaped from the live chicken market next door to the author's house.
- ロ The author has happy memories of the time he cared for a chicken.
- ハ The author loves animals, so he does not eat fish or chicken.
- ニ The pet store staff encouraged the author to order chicken feed from Texas.
- ホ The readers of the author's column are angry that he made the wild chicken a pet.
- ヘ The chicken became famous after the author wrote about her.
- ト The author was disappointed the chicken laid only five or six small eggs a week, despite being given grain.

〔Ⅲ〕 つぎの英文を読み、設問に答えよ。

Why is geometry often described as “cold” and “dry?” One reason is its inability to describe the shape of a cloud, a mountain, a coastline, or a tree.

(A) Clouds are not spheres, mountains are not triangles, coastlines are not circles, and the surface of a tree is not smooth, nor does lightning travel in a straight line.

In general, I claim that many patterns of nature are so irregular and fragmented that nature exhibits an altogether different level of complexity compared with standard geometry. The number of these distinct, natural patterns is infinite for all practical purposes.

The existence of these patterns challenges us to study those forms that standard geometry leaves aside as being “formless.” In short, we need to investigate the morphology^{注1} of the “amorphous”^{注2}. Mathematicians have neglected this challenge. Instead, they have increasingly chosen to flee from nature by devising theories unrelated to anything we can see or feel.

In response to this challenge, I have developed a new geometry of nature and implemented it in a number of different fields. It describes many of the irregular and fragmented patterns around us, and can lead to full-grown theories, by identifying a family of shapes I call fractals. An example is shown in Figure 1 below.

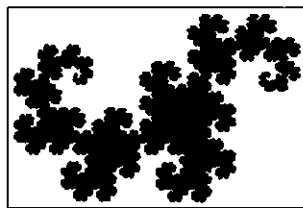


Fig. 1

There are three main characteristics of fractals. First, the most useful of these fractals involve chance. Both their regularities and their irregularities

(6)

can be predicted statistically. Second, ^(B) the shapes described here tend to be scaling, implying that the degree of their irregularity and/or fragmentation is identical at all scales. That is, these particular patterns are repeated in both smaller and larger sizes. ^(C) Third, some fractals are curves, others are disconnected “dusts,” and yet others are so oddly shaped that there are no good terms for them in either the sciences or the arts.

To explain my theory, I pursue neither abstract nor general concepts for their own sake, and I have written neither a textbook nor a paper in mathematics. I describe it as a scientific essay because it is written from a personal point of view and does not attempt to be complete. ^(Y) Also, like many essays, it tends to digressions^{注3} and interruptions. This informal style should help readers avoid the parts lying outside their interests or beyond their competence.

注1 morphology：形態学

注2 amorphous：不定形の

注3 digressions：余談

1. つぎのイ～ホに挙げる単語のうち geometry ⁽¹⁾ の性質を持たないものはどれか、その記号を解答用紙にマークせよ。

イ circle □ triangle ハ cloud

ニ straight line ホ sphere

2. claim ⁽²⁾ の意味に最も近いものはどれか、該当する記号を解答用紙にマークせよ。

イ assert □ announce ハ repeat

ニ dispute ホ reason

3. distinct の反意語にふさわしいのはどれか、該当する記号を解答用紙にマークせよ。⁽³⁾

- イ overlapping □ separate ハ individual
ニ specific ホ obvious

4. formless の意味に最も近いものはどれか、該当する記号を解答用紙にマークせよ。⁽⁴⁾

- イ indirect □ clear ハ invisible
ニ displaced ホ unstructured

5. Instead の品詞は何か、該当する記号を解答用紙にマークせよ。⁽⁵⁾

- イ 名詞 □ 形容詞 ハ 副詞 ニ 動詞 ホ 助動詞

6. chance の意味に最も近いものはどれか、該当する記号を解答用紙にマークせよ。⁽⁶⁾

- イ opportunity □ danger ハ power
ニ probability ホ happening

7. 下線部 fractals の言い換えとして ふさわしくないものはどれか? 下線部^(X) (a)~(d)の中から一つ選び、その記号を解答用紙にマークせよ。

- (a) a new geometry of nature
(b) the irregular and fragmented patterns
(c) full-grown theories
(d) a family of shapes

8. essay の説明として最も適切なものをつぎのイ～ホの中から選びその記号を
(Y)
解答用紙にマークせよ。

- イ a separate clause or paragraph of a legal document or agreement, typically one outlining a single rule or regulation
- ロ a formal assessment or examination of something with the possibility or intention of indicating change if necessary
- ハ an academic paper involving personal research, written by a candidate for a college degree
- ニ a short piece of writing giving someone's ideas about politics, society, science, etc.
- ホ a written description of an event or situation, especially one intended for publication or broadcast in the media

9. 下図(Fig. 2)の説明として最もふさわしいものは下線部(A), (B), (C)のどれか。該当する記号を解答用紙にマークせよ。

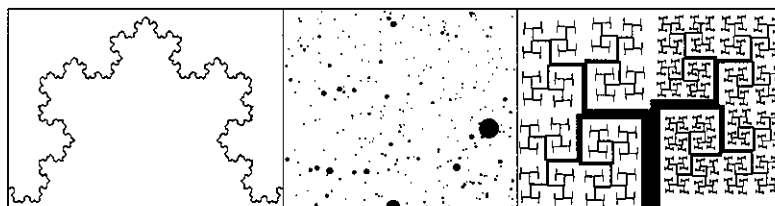


Fig. 2

[IV] つぎの日本語1～5の意味に合うような英文とするために、イ～への中から単語を選び、その記号を解答用紙にマークせよ。ただし、選択する単語はすべて小文字で表現してある。

1. 科学者たちは私たちが長生きする方法を絶えず模索している。ある学者は私たちの寿命は主として遺伝子によって決定すると言う。しかし、ここ数年間に、マウスにより少ないえさを与えると健康が増進することが研究で明らかになった。

Scientists are continually looking for to help us live longer. Some say that the of our life is decided mainly by our genes. But the few years studies have shown that mice less food their health.

- | | | |
|--------|----------|------------|
| イ past | □ giving | ハ in |
| ニ ways | ホ length | ヘ improves |

2. 友情は人生で最も貴重なものの一つである。友人がいなければ、われわれは物騒な世の中でひどく孤独を感じることもある。友人のいない人は、人生の避けがたい難局に一人で立ち向かわなければならない。

Friendship is one of the most things in life. Without friends we can feel very much in a world. A person without friends has to face life's troubles alone.

- | | | |
|------|--------------|---------------|
| イ up | □ inevitable | ハ threatening |
| ニ to | ホ valuable | ヘ alone |

3. 彼なら約束と友情を区別するのは難しいとは思わないだろう。彼にとっては、約束は約束である。相手がちょっとした知り合いであろうと親友であっても同じことである。

For him [1] would not be difficult to [2] a promise and friendship [3]. To him, a promise is a promise. It makes [4] [5] whether the other person is a [6] acquaintance or a good friend.

- | | | |
|--------------|----------|------|
| イ difference | ロ apart | ハ no |
| ニ tell | ホ casual | ヘ it |

4. わずか 100 年前、人間は自然との調和の中で暮らしていた。その頃は、さほど多くの人間もいなかったし、人間が必要とするものも少なかった。どんな廃棄物が生み出されても、自然はそれを吸収し、間もなくおおい隠してくれた。

Only 100 years ago, people lived [1] harmony [2] nature. There weren't so many people then, and their [3] were fewer. Whatever [4] were produced [5] be absorbed by nature and soon covered [6].

- | | | |
|--------|---------|----------|
| イ over | ロ could | ハ wastes |
| ニ in | ホ wants | ヘ with |

5. 自分はいつまでも健康でいられるだろう。自分はいつまでも生き続けるであろう。このような不死への願望は全人類に共通なものである。私たちは病気になるまでは、健康であることを当たり前だと思っている。私は自分が死ぬことはない、ずっと信じて疑わなかった——数年前までは。

I will be healthy forever. I will live forever. This for immortality is common all mankind. We health until illness intervenes. I've never had any that I was immortal — until a few years ago.

イ doubt

□ wish

ハ granted

ニ to

ホ take

へ for

[V] つぎの1～12の文章を完成させるために、最も適している語(句)をイ～ニの中から1つ選び、その記号を解答用紙にマークせよ。

1. There is a new movie theater Chestnut Street, across from the bank.

イ of □ on ハ at ニ over

2. I hope I speak another language fluently someday.

イ can □ could ハ would ニ should

3. There are a few cases this rule does not hold good.

イ what □ as ハ that ニ where

4. I had hardly returned from my vacation my schedule was filled with meetings and appointments.

イ at □ before ハ within ニ after

5. She would not accept more money she really needed.

イ than □ that ハ what ニ whom

6. His new movie is different from his last one, it's based on a true story.

イ in that □ for that ハ of which ニ with which

7. It seems the ski trip will have to be canceled, as not enough people are going.

イ even though □ if only ハ but for ニ as if

8. The leaves of the maple tree in this area have turned completely red,
 a beautiful sight.

イ offering □ offer ハ being offered ニ offered

9. He can't read music, play the violin.

イ as ever □ more or less ハ no longer ニ much less

10. teacher gives as much homework as Mr. Tanaka.

イ Of all □ No other
ハ More and more ニ More or less

11. Their homework , the children all went out to play in the park.

イ finishing □ finished
ハ having finished ニ had finished

12. receiving a new watch for his birthday, Jim was given a ticket
for a rock concert by his friends.

イ Unless □ Without ハ Besides ニ Even if

〔VI〕 次の文1～8を完成させるのに最も適切な語(句)をイ～ニの中から一つ選び、その記号を解答用紙にマークせよ。

1. You'll get out of if you don't exercise regularly.

イ style □ state ハ sight ニ shape

2. She had to her holiday because she was too ill to travel.

イ spread out □ take back ハ put off ニ fall over

3. The scientist spoke to the audience about the dangers of global warming.

イ in touch □ on hand ハ at length ニ for good

4. I'm going to the family business next year when my father retires.

イ stay up □ stand out ハ fill out ニ take over

5. People have often tried to grow blue roses, but all their efforts have failure.

イ parted in □ ended in ハ passed on ニ relied on

6. It will take more than a week to your cold.

イ take after □ get off ハ take off ニ get over

7. The party got out of , so the neighbors called the police.

イ hand □ foot ハ back ニ face

8. The school did away all the old desks in the classrooms.

イ to □ of ハ in ニ with