東京医科歯科大学　一般 前期

平成23年度入学者選抜個別(第2次)学力検査問題

外　国　語

注　意　事　項

1. 監督者の指示があるまで，この冊子を開いてはいけません。
2. 問題冊子は，全部で8ページあり，第1～3ページは下書用紙です。下書用紙は切り離してはいけません。
3. 問題は，第4ページと第5ページの間に，はさみこんであります。
4. 解答用紙は，問題冊子と別に印刷されているので，誤らないように注意しなさい。
5. 解答は，必ず解答用紙の指定された欄内に**横書き**で記入しなさい。
6. 各解答用紙には，受験番号欄が2または4か所あります。それぞれ記入を忘れないこと。
7. 解答用紙は，記入の有無にかかわらず，机上に置き，持ち帰ってはいけません。問題冊子は持ち帰りなさい。
8. 落丁または印刷の不鮮明な箇所があれば申し出なさい。

学科によって解答すべき問題が異なります。
説明に従って解答しなさい。

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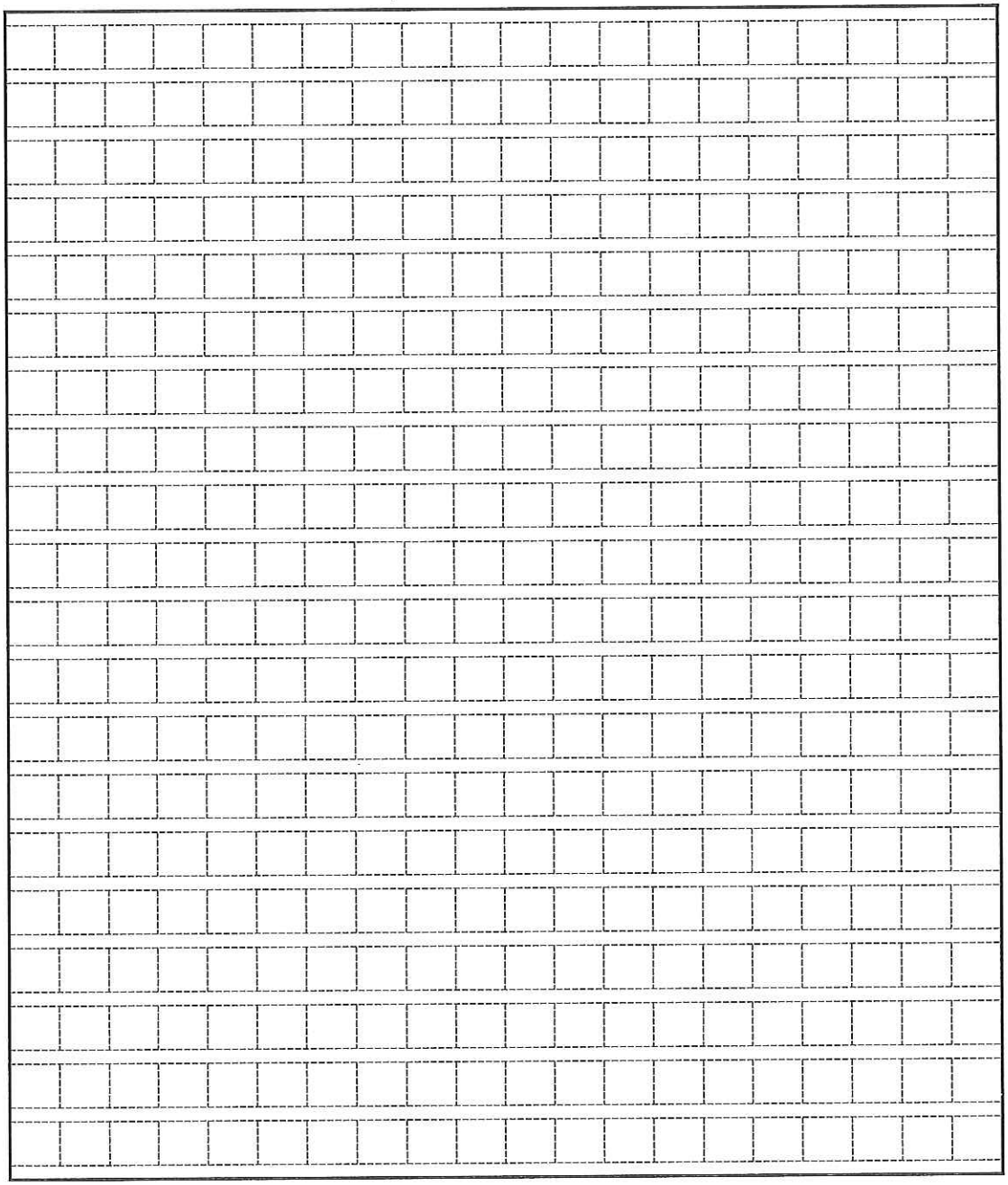

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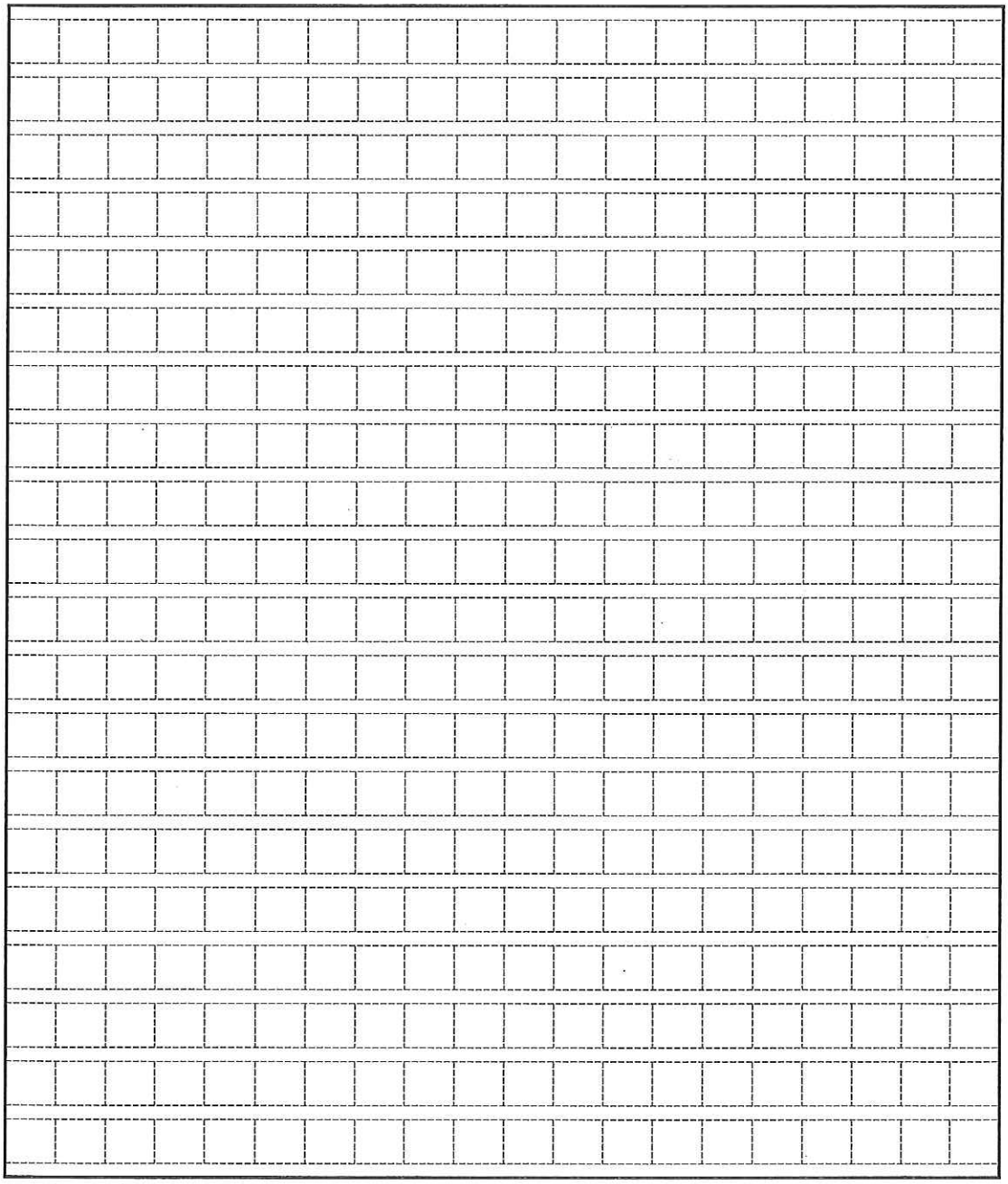

(20×20)

外　国　語

次の英文は *Science* 誌(2004年6月25日)に掲載された"Biomonitoring: Pollution Gets Personal"(Erik Stokstad著)の記事を一部改変したものです。この文章をよく読んで，問題[1]から[6]のうち，医学科と歯学科の受験者は問題[3]，[4]，[5]，[6]に答えなさい。保健衛生学科(看護・検査)と口腔保健学科の受験者は問題[1]，[2]，[3]，[5]，[6]に答えなさい。解答は解答用紙の指定された欄に記入すること。

＊印のついている語句の注は本文のあとに示されています。

After the World Trade Center towers collapsed on 11 September 2001, the world was gripped by the search for survivors. Researchers at the Centers for Disease Control and Prevention (CDC) raced to address an additional concern: the exposure of rescuers to ***potentially*** toxic smoke from the debris. They took blood and urine samples from 370 firefighters. After examining the samples for dioxins, cyanide*, and 100 other chemicals associated with burning buildings, they determined that the rescuers had not been exposed to dangerous levels. Although the **team**(1) couldn't rule out all possible health effects, the fast tests were a huge help in ***eliminating*** the need for a lot of further studies.

What made the rapid findings possible were advances in methods of sampling human tissue for chemicals, called biomonitoring. Over the past decade, techniques have improved so much that researchers can ***detect*** ever smaller concentrations of chemicals in a single blood sample. The largest effort is the CDC's National Report on Human Exposure to Environmental Chemicals, an ongoing $6.5 million survey that is measuring about 145 chemicals in some 2500 people across the United States every 2 years. "It's critically important early intelligence about compounds that are getting into people," says Philip Landrigan of Mount Sinai School of Medicine in New York City.

Biomonitoring is popular. With lab costs down, environmental groups are doing their own analyses of chemical exposures. Last year, the Environmental Working Group (EWG) in Washington, D.C., released a report that examined the levels of 210 chemicals in nine people. In April, the World Wildlife Federation tested for 101 compounds in 39 members of the European Parliament. The reason is clear: Such studies can ***generate*** headlines and political pressure. As a result of biomonitoring data, "we'll see ***sweeping*** changes in our system of public health safeguards," predicts Jane Houlihan, EWG's vice president of research.

Although biomonitoring can provide a lot of statistics about the chemicals people are exposed to, it can't always indicate whether such exposures are likely to make them sick. So while environmentalists view biomonitoring as a valuable tool for ***precautionary*** action, chemical manufacturers worry that **it** (2) will result in unjustified alarm and costly regulations that may not provide much real benefit to public health. What's becoming ever more obvious, researchers say, is a growing data gap: Although testing for a chemical can take just a few days, ***discerning*** its impact on health takes years.

* * *

Public health researchers have long studied worker exposure to chemicals. Such testing was important in ***figuring out*** the toxicity of PCBs* and dioxins, for example. But measurements of the average person who encounters small concentrations through food, air, or skin were not available. As a result, the CDC in 1976 started to look at blood and urine samples of the general population and checked for environmental chemicals, including lead and a handful of pesticides*.

The CDC's small testing program was massively expanded in the late 1990s to become the world's largest survey of chemical exposure among the general public. As part of the National Health and Nutrition Examination Survey (NHANES), the CDC's biomonitoring results provide a guide to ***typical*** exposure to chemicals that pose a known or possible threat to health. Many are pesticides; others are ingredients in cosmetics, plastics, and other components of everyday life.

Biomonitoring's strength is that it directly measures the amount of a chemical in bodily fluids or tissues. Those exposure data are much more ***relevant*** for risk assessments than are estimates based on chemical concentrations in soil, air, or water. What you really want to know is not whether asbestos* is in the walls but whether it's in your lungs; if it is not in your body then you do not need to worry about **it** (3) affecting your health.

Ideally, biomonitoring can help public health officials figure out what to worry about — and what not to worry about. However, it must be remembered that high levels aren't necessarily dangerous, and typical levels aren't necessarily safe. Additionally, there are other factors relevant to health, such as how long the compounds remain in the body.

* * *

Early surveys were at irregular intervals, but the CDC decided in the late 1990s to conduct an ongoing sample of the U.S. population every 2 years. All year long, teams from the **organization** (4) are going to neighborhoods in 30 locations across the country, interviewing the people who live there, performing exams, and sampling blood and urine.

The number of chemicals tested jumped from 27 in 2001 to 116 just a few years later. Future years will include about 145. Costs of testing have dropped and speed has increased, due to scientific improvements, many of which were pioneered at the CDC. Since the 1970s, the precision of lead measurements has increased dramatically, and instead of needing 10 milliliters of blood, only a drop is required. That means researchers can test for many dozens of chemicals in a single 10-milliliter blood sample. More chemicals and more frequent testing mean they can spot trends sooner.

Biomonitoring effectively tracked the success of a major public health intervention: the reduction of blood lead levels. When the United States and other countries set out to reduce automobile emissions, it was suggested that lead levels in children would decrease slightly as gas lead levels declined. Beginning in 1976,

the CDC began checking lead levels in children and adults. Although some questioned the expense of biomonitoring, recalls Landrigan, "the payoff was almost instantaneous," by showing that the lowered lead level in gasoline was having a dramatic effect. In fact, biomonitoring revealed that blood lead levels declined much more than expected between 1976 and 1980. These data were instrumental in the Environmental Protection Agency's (EPA's) decision to remove lead from gasoline more rapidly.

By determining typical exposures in the general population — called a reference range — researchers can better investigate concerns about apparently heightened disease rates. The CDC's data also highlight national concerns. Its first National Report on Human Exposure to Environmental Chemicals, released in 2001, revealed, for instance, that about 8% of all women of childbearing age — more than expected — have levels of mercury higher than the level the EPA generally regards as safe. The biomonitoring also showed that the average level in this group is four times higher than that in children — suggesting that regulators can't extrapolate* between the two groups. The CDC is now measuring various kinds of mercury in people, to determine how much comes from fish, drinking water, or other sources.

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Biomonitoring doesn't always answer all of our questions, though. (ア)The CDC tends to pick chemicals for which toxicity data indicate a human health effect. But it also chooses chemicals that are of potential concern because of animal studies that suggest a danger and the number of people who are likely exposed. And when toxicity is not clear-cut, it becomes difficult to know what to make of the findings.

Take phthalates*, chemicals found in a wide range of consumer products. In 2000, the CDC published a paper on a subset of 289 adults from NHANES, the largest look at these chemicals at that time. Evidence of higher phthalate exposure was found in women aged 20 to 40 than in other groups. These are ingredients used in nail polish, cosmetics, and other personal care products such as soap and

shampoo, particularly those with fragrances added. Some evidence from animals indicates that the compounds can imitate certain female hormones, which could lead to reproductive problems. The EWG launched a campaign to remove these compounds from cosmetics and petitioned the Food and Drug Administration to put warning labels about phthalates and other chemicals on personal care products. But an industry group responded that the statements of possible danger were "alarmist," and it pointed out that the second national report in 2003, which includes many more people than the initial study, didn't find elevated levels among 20- and 30-year-old women.

Polybrominated diphenyl ethers (PBDEs*) are another case in point. The European Union and California have banned the compounds, widely used as flame retardants*, after researchers discovered that levels in breast milk had gone up sharply — even though nobody knows for sure whether **these compounds**(5) are toxic to humans. Levels are still rising in the United States. Last year, the main U.S. manufacturer voluntarily began to phase out two PBDEs, but the EPA hasn't regulated any. The CDC is now measuring PBDEs.

For the EPA, the problem is that the pace of biomonitoring has exceeded that(イ) of the basic science needed to reveal whether a chemical causes harm. A big step forward, researchers say, would be the multi-agency National Children's Study, a $2.7 billion health survey intended to follow 100,000 children as they grow up, monitoring levels of environmental chemicals and looking for any associations with disease. Such a study is needed to answer the questions raised by biomonitoring, says Landrigan. But it could be years if not decades before those answers are in.

注

cyanide　シアン化物，青酸塩
pesticides　殺虫剤
extrapolate　推論・推定する
PBDEs　ポリ臭化ジフェニルエーテル
PCBs　ポリ塩化ビフェニル
asbestos　石綿，アスベスト
phthalates　フタル酸塩
flame retardants　難燃剤

問　題

保健衛生学科および口腔保健学科

1 ***The following terms appear in bold italics in the text. On the answer sheet, circle the letter indicating the best definition for each term (based on how the term is used in the text). Blank answers will be graded as incorrect.***

potentially

a) slightly　b) extremely　c) possibly
d) definitely　e) smelly

eliminating

a) publicizing　b) creating　c) initiating
d) removing　e) understanding

detect

a) review　b) identify　c) magnify　d) use　e) remove

generate

a) support　b) upgrade　c) produce　d) reduce　e) stop

sweeping

a) extensive　b) positive　c) innovative
d) minor　e) temporary

precautionary

a) government　b) political　c) legal
d) critical　e) preventive

discerning

a) determining　b) justifying　c) increasing
d) lessening　e) postponing

figuring out

a) fostering　b) understanding　c) adjusting
d) solving　e) blocking

typical

a) safe　b) dangerous　c) rare
d) special　e) usual

relevant

a) ecological　b) inefficient　c) quick
d) useful　e) inexpensive

保健衛生学科および口腔保健学科

2 ***What do the following words, which are underlined in the text, refer to? Answer using one, two, or three English words from the same paragraph that can replace the underlined text.***

1) team　　2) it　　3) it

4) organization　　5) these compounds

全学科

3 ***According to the text, decide whether the following statements are true (T) or false (F). For each statement, circle the correct answer on the answer sheet. Blank answers will be graded as incorrect.***

1) Blood and urine samples taken from 370 firefighters after the collapse of the World Trade Center towers on 11 September 2001 revealed dangerous levels of dioxin and other chemicals associated with burning buildings.

2) The CDC's National Report on Human Exposure to Environmental Chemicals is a survey that is tracking chemical exposure (or accumulation) in a sample of people in the United States.

3) Every two years the CDC examines chemical exposure in approximately 2500 people across the United States.

4) The article suggests that biomonitoring can be a powerful tool for environmental groups, because data from it can be used to focus public attention on their issues.

5) The Environmental Working Group and World Wildlife Federation both began biomonitoring research as a result of headlines and political pressure.

6) Environmentalists suspect that biomonitoring will result in unjustified alarm and costly regulations that are not really beneficial for public health.

7) The study of worker exposure to chemicals has a relatively short history, especially in comparison with the study of the effects of toxic chemicals on the average person.

8) The CDC has been examining lead levels in the general population for more than 25 years.

9) The CDC's testing program was dramatically enlarged at the end of the 20th century.

10) As part of NHANES, the CDC includes biomonitoring results of chemicals which are known to be safe for the average person.

11) Based on U.S. data, asbestos is the primary chemical threat to people in the general population.

12) Biomonitoring is more useful for collecting data about chemical exposure than predicting the effects of that exposure.

13) By measuring chemical concentrations in soil, air, or water, biomonitoring researchers estimate the amount of chemicals in bodily tissues or fluids.

14) After a period of conducting surveys at irregular intervals, the CDC decided in the late 1990s to conduct regular surveys.

15) The modern testing techniques that use a 10-milliliter blood sample can provide information on more than 20 different chemicals.

16) The CDC developed many of the techniques which have made chemical testing faster and less expensive.

17) Biomonitoring effectively tracked the amount of lead in automobile emissions.

18) The CDC is now attempting to determine what proportion of the mercury found in people comes from fish, drinking water, or other sources.

19) Biomonitoring showed that children have mercury levels four times the amount found in a group of women who were also studied.

20) One reason phthalates are of possible concern is that their use is widespread; they are found in shampoo, cosmetics, nail polish, soap, and other commonly used products.

21) Biomonitoring research publicized by the EWG and the Food and Drug Administration showed that some reproductive problems were the result of phthalate exposure.

22) Although at least one industry group has pointed out that phthalates cause reproductive problems, some companies argue this is not a sufficient reason to ban phthalates.

23) The EPA started to regulate PBDEs after their levels in breast milk rose in the United States.

24) Because of new EPA regulations, the primary U.S. manufacturer of PBDEs has started to phase out production of two PBDEs.

医学科と歯学科のみ

4 ***Briefly (in 10 to 25 words) answer the following questions in your own words, using complete English sentences.***

1) How do environmentalists and chemical manufacturers differ in their views of biomonitoring?

2) Contrast the findings of the 2000 and 2003 reports on phthalates regarding women in their 20s and 30s.

3) Give one specific example of how the results of biomonitoring have changed public policy.

全学科

5 下線部(ア)と(イ)を日本語に訳しなさい。

全学科

6 バイオモニタリングの利点と限界について，以下のキーワードを用いて400字以内で説明しなさい：鉛("lead")，化学メーカー("chemical manufacturers")。

東京医科歯科大学 前期

平成23年度入学者選抜個別(第2次)学力検査

解答用紙

外 国 語 (その1)

受験番号

受験番号

外 国 語

(その1)

1 **保健衛生学科および口腔保健学科**

potentially a) b) c) d) e)

eliminating a) b) c) d) e)

detect a) b) c) d) e)

generate a) b) c) d) e)

sweeping a) b) c) d) e)

precautionary a) b) c) d) e)

discerning a) b) c) d) e)

figuring out a) b) c) d) e)

typical a) b) c) d) e)

relevant a) b) c) d) e)

採点欄

採点欄

2 **保健衛生学科および口腔保健学科**

1) _____

2) _____

3) _____

4) _____

5) _____

採点欄

採点欄

平成23年度入学者選抜個別(第2次)学力検査
解答用紙
外　国　語　(その2)

受　験　番　号					

受験番号					

外　国　語
(その2)

3 全学科

1)	T	F	13)	T	F
2)	T	F	14)	T	F
3)	T	F	15)	T	F
4)	T	F	16)	T	F
5)	T	F	17)	T	F
6)	T	F	18)	T	F
7)	T	F	19)	T	F
8)	T	F	20)	T	F
9)	T	F	21)	T	F
10)	T	F	22)	T	F
11)	T	F	23)	T	F
12)	T	F	24)	T	F

採　点　欄

採　点　欄

平成23年度入学者選抜個別(第2次)学力検査
解答用紙
外　国　語　(その3)

受　験　番　号

受験番号

外　国　語
(その3)

4 **医学科および歯学科**

1) _____

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採　点　欄

採　点　欄

2) _____

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採　点　欄

採　点　欄

3) _____

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採　点　欄

採　点　欄

平成23年度入学者選抜個別(第2次)学力検査

解答用紙

外　国　語　(その4)

受　験　番　号				

受験番号				

5 **全学科**

(ア)

採　点　欄

(イ)

採　点　欄

外　国　語

(その4)

採　点　欄

採　点　欄

採　点　欄

採　点　欄

受験番号

平成23年度入学者選抜個別(第2次)学力検査問題解答用紙

外 国 語(その5)

外国語
(その5)

⇧

受験番号は4か所全てに記入すること。

⇩

6 **全学科**

(20×20)

受験番号	外 国 語(その5)	採点欄

受験番号	外 国 語(その5)	採点欄

受験番号	外 国 語(その5)	採点欄