平成23年度　入学試験問題

医学部（Ⅱ期）

英語・数学

注意事項

1. 試験時間　平成23年3月5日，**午前9時30分から12時まで**
2. 配付した試験問題(冊子)，解答用紙の種類はつぎのとおりです。

(1) **試験問題**(冊子，左折り)(表紙・下書き用紙付)

英　語(その1，その2)

数　学(その1，その2)

(2) **解答用紙**

英　語(その1)　1枚(上端黄色)(右肩落し)

〃　(その2)　1枚(上端黄色)(左肩落し)

数　学(その1)　1枚(上端茶色)(右肩落し)

〃　(その2)　1枚(上端茶色)(左肩落し)

3. 下書きが下書き用紙で足りなかったときは，試験問題(冊子)の余白を使用して下さい。
4. 試験開始2時間以後からは退場を許可します。但し，試験終了10分前以降の退場は許可しません。
5. 受験中にやむなく外出(手洗い等)を望むものは挙手し，監督者の指示に従って下さい。
6. 退場の際は，この試験問題(冊子)を一番上にのせ，挙手し監督者の許可を得てから，試験問題(冊子)，受験票および所持品携行の上退場して下さい。
7. 休憩のための退場は認めません。
8. 試験終了のチャイムが鳴ったら，直ちに筆記をやめ，おもてのまま上から解答用紙〔英語(その1)，英語(その2)，数学(その1)，数学(その2)〕，試験問題(冊子)の順にそろえて確認して下さい。確認が終っても，指示があるまでは席を立たないで下さい。
9. 試験問題(冊子)はお持ち帰り下さい。
10. 監督者退場後，試験場で昼食をとることは差支えありません。ゴミ入れは場外に設置してあります。
11. 午後の集合は1時15分です。

英　語（その１）

1　第１アクセントの位置が他と異なるものを１つ選び，記号で答えなさい。

1. A. en-chant　B. af-firm　C. re-cede
   D. per-ish　E. ob-struct
2. A. lon-gi-tude　B. syn-the-size　C. mo-men-tum
   D. sov-er-eign　E. coun-te-nance
3. A. in-cen-tive　B. con-se-quent　C. en-ter-prise
   D. am-bu-lance　E. sac-ri-fice
4. A. for-mu-late　B. co-her-ent　C. rev-er-ence
   D. ac-cu-rate　E. sen-ti-ment
5. A. sub-or-di-nate　B. tes-ti-mo-ny　C. hy-poc-ri-sy
   D. ex-as-per-ate　E. de-moc-ra-cy

2　（　　）の中に入る最も適切な語(句)を１つ選び，記号で答えなさい。

1. The results of the experiment are (　　).
   A. of the following　B. as follows　C. to follow
   D. as followed　E. following
2. Statistics (　　) that crime has been increasing in this area.
   A. find　B. seem　C. show　D. appear　E. look
3. Ms. Jones is on a maternity (　　). She will not be back until April.
   A. holidays　B. rest　C. pause　D. vacation　E. leave
4. Excessive intake of fat can cause cholesterol to accumulate inside the arteries, (　　) increasing the risk of heart attacks.
   A. although　B. accordingly　C. thereby　D. except　E. as such
5. He studied medicine in Germany in his twenties (　　) the expense of the government.
   A. with　B. on　C. at　D. by　E. to
6. We sat up all night worrying lest (　　) by the troops.
   A. he has been captured　B. he were to be captured　C. had he been captured
   D. he be captured　E. his being captured
7. The case (　　) I referred above is rather rare.
   A. to which　B. for which　C. of which　D. in which　E. from which
8. Female students accounted (　　) nearly half of all the students.
   A. in　B. of　C. by　D. for　E. to

9. I completely forgot my wife's birthday, (　　) with one thing and another.

A. which　　B. when　　C. what　　D. except　　E. even though

10. Since the flu virus can make its way through, these masks are (　　) to useless.

A. near　　B. next　　C. but　　D. close　　E. second

3 次の文章を読んで，以下の１～７が本文の内容と一致する場合にはT，一致しない場合にはFと答えなさい。

A British study has found that B vitamins can reduce brain shrinkage in older people with mild memory loss. It showed that B vitamins caused an average one-third reduction in brain shrinkage among adults who had trouble remembering.

Retired Oxford University pharmacology* professor David Smith was a leader of the study. He praised the use of the vitamins as simple and safe. He also said researchers do not yet know if B vitamins could prevent or slow Alzheimer's disease. A report about the Oxford study appeared in PLoS One, a publication of the Public Library of Science.

Vitamins are important for good health. These complex organic substances help to carry out chemical changes within cells. If we do not get enough of the vitamins we need in our food, we are at risk of developing a number of diseases.

Some shrinkage of the brain is thought to happen normally as people grow older. Yet studies have shown a link between a larger shrinkage and Alzheimer's disease.

The Oxford researchers tested one hundred sixty-eight people over twenty-four months. All of those tested were over age seventy. One group in the study took B vitamins every day. They swallowed tablets containing folic acid*, vitamin B-6 and vitamin B-12. A second group took placebos — harmless substances that did not contain the vitamins or folic acid.

Two years later, the researchers used magnetic resonance imaging* tests to study both groups. They also tested the thought processes of each person. Those taking the vitamins had up to fifty percent less brain shrinkage than those taking the placebos.

Professor Smith says the researchers chose B vitamins for the study because they control homocysteine*, an amino acid in the blood. Earlier studies have linked high homocysteine levels to a greater risk of Alzheimer's.

The Oxford researchers say about one in six people over age seventy has problems with mental operations*. They say half of these people develop serious loss of mental ability, as in Alzheimer's disease. Over time, the disease robs people of their memories. Finally, it takes away their ability to care for themselves.

Rebecca Wood is chief officer of the Alzheimer's Trust in London. She described the results of the study as important. However, she said an extended study should be made of

people who might be expected to develop Alzheimer's.

Professor Smith had a warning for older adults worried about memory loss. He said they should talk to their doctors before starting to take the vitamins. He said the vitamins could speed the growth of some cancers.

In 2008, the Journal of the American Medical Association published a study of older patients with mild to moderate Alzheimer's disease. Three hundred forty people took part in the study. Of those, two hundred two took vitamins. One hundred thirty eight others got placebos.

The results did not show a difference in loss of abilities such as attention, language and memory. That was true whether or not the people took the vitamins.

In other research news, American scientists say people with a special marker in their genes develop Alzheimer's faster than others. The journal PLoS Genetics published the finding of a scientific team from Washington University in Saint Louis, Missouri.

The scientists said a change of a gene that governs a protein known as tau strongly influences the rate at which the disease develops. Other studies have linked the tau protein* to the development of Alzheimer's.

The recently announced World Alzheimer Report places a shocking financial cost on care linked to dementia, or loss of mental abilities. Alzheimer's is the most common of the dementia disease. The report says dementia will cost the world six hundred four billion dollars this year. That is more than one percent of the world's total amount of money from goods and services.

The report urges the World Health Organization to make loss of mental abilities a cause of major interest. Campaigners say more investment in care and research is necessary.

Martin Prince of Britain's Institute of Psychiatry, at King's College in London, was a writer of the report. Professor Prince said nations around the world need to develop better plans for caring for the millions who have the disease.

(In Study, B Vitamins Lessen Brain Shrinkage in Some Older Patients,
Science in the News, Special English, Voice of America, October 6, 2010)

(注) pharmacology 薬理学　　folic acid 葉酸
magnetic resonance imaging 磁気共鳴映像法(=MRI)
homocysteine ホモシステイン　　mental operation 心的操作
tau protein タウタンパク質

1. In the Oxford study, all the participants who took the vitamins experienced fifty percent less brain shrinkage than those in the other group.
2. It was the study led by Professor Smith that associated high homocysteine levels to a greater risk of Alzheimer's for the first time.
3. The Oxford researchers say that more than twenty percent of people over age seventy have problems with mental operations.
4. Professor Smith fears that B vitamins can accelerate the growth of some cancers.
5. All the studies published so far show that taking vitamins can prevent the loss of abilities such as attention, language and memory.
6. A study conducted by a team of American scientists from Washington University maintains that a change in the gene that governs the tau protein plays a relatively minor role in the development of Alzheimer's.
7. Professor Prince wrote a report on the amount of money the world has to bear concerning the financial cost caused by dementia.

英　語（その２）

4 次の和文に合うように[　　]内の語(句)を並べ替えて英文を完成させなさい。ただし，足りない単語が一つあるので，それは自分で補いなさい。また解答欄には[　　]内だけを書くこと。なお，文頭に来る単語も小文字で始めています。

1. 実はわたしはその知らせを同僚の一人から直接に聞いたのですよ。
   Actually, [one / heard / the / I / from / at / of / hand / news / my] colleagues.
2. わたしは彼女を信頼しています。必ず約束を守ってくれる人ですから。
   I trust her. [as / word / is / she / her / as].
3. 彼はあまりにも疲れていたので，思わず眠りこんでしまった。
   He [fell / of / that / was / he / so / in / asleep / tired / spite].
4. 死刑は廃止すべきだと考える法律家もなかにはいる。
   [away / should / penalty / be / some / think / lawyers / that / death / done / the].
5. 彼の提案が受け入れられなかったのは当然だ。
   [rejected / that / his / it / reason / proposal / stands / was].

5 次の文章を読んで，設問に答えなさい。

A new study estimates that 2.5 percent of the United States population, (　1　) about 7.6 million Americans, have food allergies. Food allergy rates were found to be higher for children, non-Hispanic blacks, and males, according to the researchers. The odds of male black children having food allergies were 4.4 times higher than others in the general population.

The research, which was funded by the National Institutes of Health* and appears in the Journal of Allergy and Clinical Immunology*, is the first to use a nationally representative sample, as well as specific immunoglobulin* E (IgE) or antibody levels to quantify allergic sensitization* to common foods, including peanuts, milk, eggs, and shrimp. The hallmark[2] of food allergy is production of IgE antibodies to a specific food protein. (　3　) IgE antibody is made, further exposure to the food triggers an allergic response. IgE levels are often high in people with allergies.

"This study is very comprehensive in its scope. It is the first study to use specific blood serum* levels and look at food allergies across the whole life spectrum, from young children aged 1 to 5, to adults 60 and older," said Darryl Zeldin, M. D., acting clinical director at the NIH's National Institute of Environmental Health Sciences (NIEHS) and senior author on the paper. "This research has helped us identify some high risk populations for food allergies." In

addition to the identification of race, ethnicity, gender and age as risk factors for food allergies, the researchers also found an association between food allergy and severe asthma*.

Food allergy rates were highest (4. 2 percent) for children 1 to 5 years. The lowest rates (1. 3 percent) were found in adults over the age of 60. The prevalence of peanut allergies in children aged 1 to 5 was 1. 8 percent and in children aged 6 to 19, it was 2. 7 percent. In adults, the rate was 0. 3 percent.

4 The odds of patients with asthma and food allergies experiencing a severe asthma attack were 6. 9 times higher than those without clinically defined food allergies.

"This study provides further credence that food allergies may be contributing to severe asthma episodes*, and suggests that people with a food allergy and asthma should closely monitor both conditions and be aware that they might be related," said Andrew Liu, M. D., of National Jewish Health and the University of Colorado School of Medicine, Denver, and lead author on the paper.

The data used for the study comes from the National Health and Nutrition Examination Survey (NHANES) 2005-2006. NHANES is a large nationally representative survey conducted by the National Center for Health Statistics, a part of the Centers for Disease Control and Prevention*.

Zeldin and Liu note more research is needed to understand why certain groups are at increased risk for food allergy. The authors comment in the paper that food allergies may be under-recognized in blacks, males, and children, because previous studies relied on self-reporting and not food-specific serum IgE levels.

"Having an accurate estimate of the prevalence of food allergies is helpful to public health policy makers, schools and day care facilities, and other care providers as they plan and allocate resources to recognize and treat food allergies," said Linda Birnbaum, Ph. D., NIEHS director.

(Children, males and blacks are at increased risk for food allergies, NIH News, October 4, 2010)

(注) National Institutes of Health 国立衛生研究所　　immunology 免疫学
immunoglobulin 免疫グロブリン　　sensitization 【医学用語】感作(かんさ)
serum 血清　　asthma 喘息　　episode 発作
the Centers for Disease Control and Prevention 疾病管理センター

問 1 （ 1 ）に入る語として最も適切なものを選択肢から選んで，記号で答えなさい。

A. which　B. with　C. for　D. as　E. or

問 2 下線部 2 の語とほぼ同じ意味になる語を選択肢から選んで，記号で答えなさい。

A. cause　B. stimulation　C. feature　D. meaning　E. onset

問 3 （ 3 ）に入る語として最も適切なものを選択肢から選んで，記号で答えなさい。

A. Since　B. Thus　C. Then　D. Once　E. With

問 4 下線部 4 を和訳しなさい。

問 5 この研究を行った研究者たちは，黒人，男性，および子どもに見られる食物アレルギーについての認識がじゅうぶんではないことにはどのような原因があると考えていますか。日本語で説明しなさい。