

高知大学

平成 30 年度 入学試験問題(前期日程)

英 語

試験時間 120 分

医学部：医学科

問題冊子 問題…… 1 ~ 4 ページ…… 1 ~ 13
解答用紙…… 5 枚

配 点……表示のとおり

注 意 事 項

1. 試験開始の合図まで、この問題冊子を開かないこと。
2. 試験中に、問題冊子・解答用紙の印刷不鮮明、ページの落丁・乱丁及び下書用紙の不備等に気付いた場合は、手を挙げて監督者に知らせること。
3. 各解答用紙に受験番号を記入すること。
なお、解答用紙には、必要事項以外は記入しないこと。
4. 解答は、必ず解答用紙の指定された箇所に記入すること。
5. 解答用紙の各ページは、切り離さないこと。
6. 配付された解答用紙は、持ち帰らないこと。
7. 試験終了後、問題冊子、下書用紙は持ち帰ること。
8. 試験終了後、指示があるまでは退室しないこと。

問題の訂正

設問4

11ページ 14行

coma^(注) について、(注) の説明を追加

coma : 昏睡 (こんすい)

1 次の英文を読んで設問に答えなさい。(65点)

The net inflow of foreign residents^(注) into Japan was the largest ever during the last statistical year^(注), as the government pushes policies to attract foreign workers to lessen the economic repercussions^(注) from a declining and graying population.

Net inflows of foreign residents reached 136,000 for the October 2015-September 2016 period, according to data released Friday by the Ministry of Internal Affairs and Communications. That figure is more than 40% above the previous year's as well as being the largest net inflow since such records began in 1950.

The population of foreigners living here for at least three months was approximately 2.4 million, an increase of 500,000 in the last five years. The gap between the number of incoming foreigners and departing Japanese continues to widen due to the steady influx^(注) of immigrants.

With the native Japanese population of working-age people, aged 15 to 64, falling rapidly, there is a growing recognition of foreigners as important workers. Policies calling for more foreign workers in medicine, education and infrastructure are likely to gain higher priority.

Behind the scenes of the influx of foreigners are expectations for Prime Minister Shinzo Abe's economic policies. As the working-age population declines, companies are becoming more active in hiring foreign workers. Based on filings^(注) by businesses employing foreigners, the number of workers from overseas as of the end of October 2016 (1) 20% from a year earlier to 1.08 million, (2) 1 million for the first time, according to the Ministry of Health, Labor and Welfare. The nations of origin were diverse, with China in the lead and (3) numbers from Vietnam and Nepal. The increase was not (4) to workers: more spouses are also immigrating to Japan, (5) expectations that they will boost personal consumption.

In January, supermarket chain Life Corp. accepted 15 Thai technical interns^(注). Summit, another supermarket chain operating in the Tokyo area, accepted 30 foreigners in fiscal 2016^(注), more than four times the number from the previous year. The Abe government is pushing policies to encourage foreign workers with technological and management skills to come to Japan. The amount of time spent living in Japan required for permanent residency^(注) has been reduced. Foreign (6) will also get more (7) in daily (8) through (9) such as greater subsidies^(注) for (10) that hire full-time interpreters.

The decline in the working-age population is (a) likely to be reversed. Japan's economic growth potential, which is (b) already close to zero, could (c) decrease even further if something is (d) done. In addition to attracting foreign workers,

effective domestic policies dealing with the labor market, employment system and childcare support are (e) necessary.

The portion of the population under 15 years of age has reached a new low of 12.4%, while people over 75 make up 13.3%. This only increases the burden on the working-age population to fund pensions and medical costs. Improving medical efficiency by having the elderly pay more on their own will be unavoidable.

⑩ Women outnumber men in Japan by 3,402,000. The creation of a framework, centered around childcare support, that encourages more women to participate in the workforce^(注) is essential. In order to support the needs of families with two income earners, the Ministry of Health, Labor and Welfare released a plan in 2013 to reduce the time children spend on daycare waiting lists. The plan aims to create places for 500,000 more children, (applied, have, number, families, reducing, of, who, the) but cannot get into daycare facilities.

(*Foreigners streaming into Japan at record pace*, <http://asia.nikkei.com/Politics-Economy/Economy/Foreigners-streaming-into-Japan-at-record-pace> より。
ただし出題にあたり本文の趣旨を変えない範囲で一部改変した。)

(注) net inflow of foreign residents : 入移民超過 statistical year : 統計年
repercussions : 影響, 反響 influx : 流入, 到来 filing : 税申告
intern : 実習生 fiscal 2016 : 2016 会計年度 permanent residency : 永住権
subsidy : (国家の)助成金, 補助金 workforce : 労働人口, 労働力

設問 1. 下線部 ⑩ a declining and graying population が含むものを A ~ E から選び, その記号で答えなさい。ただし, 答えは一つとは限らない。

- A. a decreasing number of residents
- B. a decreasing percentage of elderly people
- C. a decreasing working-age population
- D. an increasing number of foreign workers
- E. an increasing number of working women

設問 2. 本文中の (1) ~ (5) にあてはまる単語を選び, その記号で答えなさい。ただし重複はしない。

- A. exceeding B. growing C. increased D. limited
- E. raising

設問 3. 本文中の(6)～(10)にあてはまる単語を選び, その記号で答えなさい。ただし重複はしない。

- A. hospitals B. life C. policies D. residents
E. support

設問 4. 本文中の(a)～(e)のうち, “not” という英単語が入るべき箇所を2つ選び, その記号で答えなさい。

設問 5. 下記の英文1～5について, A～Cの中で該当するものを選び, その記号で答えなさい。

- A. 本文で述べられている内容と一致している。
B. 本文で述べられている内容と一致していない。
C. 本文で述べられている内容では判断できない。

1. There has been a significant increase in the number of foreigners applying for permanent residency in Japan in recent years.
2. Despite increasing numbers of foreign residents, Japanese companies are as reluctant as ever to hire foreign workers.
3. It will probably be necessary for Japan to employ more teachers from European countries in the years to come.
4. The Japanese supermarket Summit hired fewer than 10 foreign workers in fiscal 2015.
5. The percentage of Japan's population that is over 75 years of age now exceeds the percentage aged under 15.

設問 6. 下線部⑩ Women outnumber men in Japan by 3,402,000 と同じ意味になるように, 4つの英単語で次の文章を完成させなさい。

In Japan, there are 3,402,000 _____ .

設問 7. 下線部⑪が適切な意味になるように()内の単語を並べ替えなさい。

設問 8. 英文 A ～ E のうち本文の題名としてふさわしいものを一つ選び、その記号で答えなさい。

- A. Abe Promises Childcare Support for Working Women
- B. Elderly to Fund Future Pensions and Medical Costs
- C. Foreign Companies Hire Record Numbers of Immigrants
- D. Foreign Labor Eases the Burden of Population Decline
- E. Government Policies Discourage Immigrant Workers

2 次の英文を読んで設問に答えなさい。(80点)

Architectural design is often concerned with energy (1) or (2) appeal, not microbial exposure^(注). But, in a Science & Society article, Yale University (3) engineers encourage us to consider the (4) of having these (5) organisms in our homes. Maybe, they say, instead of pushing all of them out, we should let the right ones in.

“It’s a mistake to think that all microbes found in one’s home are hazardous to your health,” says Yale Professor of Chemical and Environmental Engineering Jordan Peccia, co-author of the review with PhD student Sarah Kwan. “Many have no impact on health, while some may even be beneficial.”

Past studies have shown that children growing up on a farm, or even in a home close to a rural area, are exposed to such beneficial microbes and are less likely to develop allergies as a result. In one example, children from a Bavarian family (a population known for their farming lifestyle, such as working the fields, using horses for transport, and drinking unpasteurized^(注) milk) had less than half the levels of asthma^(注) compared to a suburban European family (5.2% compared to 19.1%). This effect was found to continue into adulthood.

“One big question becomes how building design (e.g., the geographical layout, the building materials, occupancy^(注) and ventilation^(注)) modifies microbial exposure and our own microbiomes^(注),” says Peccia. “As more and more beneficial microbes are identified, we—architects, engineers, and the general public—need to think about how we can increase our exposure to them.”

“There are certainly various factors we need to consider and better understand,” Peccia adds. For example, “(air, air, indoor, is, often, outdoor, quality, quality, than, worse),”[Ⓐ] so it makes a lot of sense to ventilate buildings with outdoor air. However, in cities with very poor outdoor air quality, increased ventilation may result in unhealthy exposure to outdoor air pollutants.”

Apart (6) working (7) a farm, one way we can increase our exposure to a wide variety (8) microbes is (9) contact (10) animals, especially cats and dogs. As well as carrying their own families of microbes, they can also bring in common bacteria and fungi^(注) from the outdoors, further contributing to the “beneficial diversity” of indoor microbes. These can then easily be breathed in or swallowed when trapped in a tightly enclosed space, such as a home or office building, where we breathe in gallons of air each day and often swallow particles of dust.

Although this field of research is still relatively new, Peccia does have some advice for people who live in urban buildings: namely, that there is not a “one size fits all” approach[Ⓑ]

to improving the microbiome in one's home. “Not everyone should run out and get a dog, of course,” he says, “but we can work to develop new approaches for solving these problems—something better than our portable air filters and inhalers^(注).”

(*Why architects should let the microbes in*, <https://www.sciencedaily.com/releases/2016/07/160707131136.htm> より。ただし出題にあたり本文の趣旨を変えない範囲で一部改変した。)

(注) microbial exposure : 微生物に触れること unpasteurized : 低温殺菌されていない
asthma : ぜんそく occupancy : 建物, 部屋 ventilation : 換気
microbiome : 微生物群 fungi : 菌類 inhaler : 吸入器

設問 1. 本文中の(1)～(5)にあてはまる適切なものを A～E から選び, 記号で答えなさい。

- (1) A. delivery B. efficiency C. production D. protection
E. prevention
- (2) A. casual B. individual C. sexual D. visual
E. vital
- (3) A. chemical B. computer C. electrical D. environmental
E. mechanical
- (4) A. benefits B. comforts C. dangers D. negative
E. positive
- (5) A. dangerous B. enormous C. unclean D. unseen
E. visible

設問 2. 下記の英文 1～5 について、A～C の中で該当するものを選び、記号で答えなさい。

- A. 本文で述べられている内容と一致している。
- B. 本文で述べられている内容と一致していない。
- C. 本文で述べられている内容では判断できない。

1. People who are exposed to a variety of microbes in childhood tend to develop fewer allergies.
2. Exposure to beneficial microbes in childhood reduces your risk of developing cancer later in life.
3. Children who grow up in rural areas have a higher risk for allergies than children from urban areas.
4. Children who play a sport are less likely to develop allergies than those who watch a lot of television.
5. When compared to children from a rural Bavarian family, children from a suburban European family were found to have more than twice the levels of asthma.

設問 3. 下線部 ㊤ が適切な意味になるように()内の単語を並べ替えなさい。

設問 4. 下記の英文 1～5 について、A～C の中で該当するものを選び、記号で答えなさい。

- A. 本文で述べられている内容と一致している。
- B. 本文で述べられている内容と一致していない。
- C. 本文で述べられている内容では判断できない。

1. Ventilating buildings with outside air often improves indoor air quality.
2. People who live in cities should never ventilate their home with outside air.
3. In Tokyo, outdoor air quality is generally worse than indoor air quality.
4. Peccia believes that all urban buildings should be ventilated with outside air.
5. Ventilating buildings with outside air may worsen indoor air quality.

設問 5. 本文中の(6)～(10)にあてはまる適切な前置詞を選びなさい。ただし、重複はしない。

for from of on through to with

設問 6. 下記の英文 1～5 について、A～C の中で該当するものを選び、記号で答えなさい。

- A. 本文で述べられている内容と一致している。
- B. 本文で述べられている内容と一致していない。
- C. 本文で述べられている内容では判断できない。

1. Microbes that are brought into the house by pets may be swallowed together with house dust.
2. Outdoor microbes may contain beneficial house dust that is brought into the house by pets.
3. Swallowing large amounts of house dust may increase our risk for various health problems.
4. Swallowing microbes that are carried into the house by pets is likely to do more harm than good.
5. Contact with pets or farm animals may prevent a child from developing allergies such as asthma.

設問 7. 下線部 ㊦ there is not a “one size fits all” approach to improving the microbiome in one’s home の意味に最も近い英文を A～E から選び、その記号で答えなさい。

- A. Depending on the size of the home, keeping a pet may not necessarily improve its indoor microbiome.
- B. There are various ways in which people can increase the beneficial diversity of microbes in their home.
- C. The quality of a home’s microbiome depends on various factors, such as the home’s size and location.
- D. Not everyone should run out and get a cat or dog, because some people may be allergic to animals.
- E. New approaches, such as portable air filters and inhalers, can also improve our home’s microbiome.

3 次の文章を読んで、質問に英語で答えなさい。(40点)

今後のわが国における最大の課題は人口の高齢化であり、そのことによる社会全体に対する深刻な影響が懸念されている。その中でも戦後築いてきた我が国の世界に誇る社会保障^(注)制度の維持が大きな問題となってきており、今後個人的・社会的な負担の増加が予想されている。我が国がこのような社会的状況の中にあつて、2020年にオリンピック・パラリンピックが東京で開催されることになり、我が国にとって多方面での転機のきっかけとなることが期待されている。なかでも、このメガイベントがスポーツ活動に関するものであることから、国民へのスポーツ活動の普及に大きく貢献することが期待されている。

(荒尾 孝, 山口泰雄:東京オリンピック・パラリンピックに向けたスポーツ普及による健康増進戦略を考える。日本スポーツ体育健康科学学術連合 第一回大会 報告書より。)

(注) 社会保障: social security

設問 1. What social phenomenon is causing concern in Japan?

設問 2. What problem is Japan facing as a result of this phenomenon?

設問 3. What consequences is this likely to have for Japanese individuals and society?

設問 4. What effect is it hoped the 2020 Tokyo Olympics and Paralympics will have?

4 次の英文を読んで設問に答えなさい。(115点)

Caffeine is the most consumed stimulant in the world. The chemical (1) reactions throughout the body that normally occur in intense situations. When we (2) danger, for example, adrenaline is secreted into our blood. Adrenaline is the hormone that's meant to be (3) when we are under stress and need to muster energy to, say, outrun a bear or (4) a fallen boulder^(it) off our climbing partner. Caffeine increases adrenaline levels in the blood. It has repeatedly been shown to (5) athletic performance in the short term, from how high a person can (6) to how fast a person can swim.

The hormone surge also creates a buzz^(it). To lift that boulder we need a flood of energy to fuel our muscles, but first we need to think we can lift the boulder. The "psychoactive^(it)" component of caffeine is what makes anything seem possible.

Caffeine works primarily by (7) the action of a chemical called adenosine, which (8) down our neural^(it) activity, allowing us to relax, rest, and sleep. By (9) with it, caffeine cuts the brake lines of the brain's alertness system. Eventually, if we don't (10) our body to relax, the buzz turns to anxiety.

Thanks to caffeine, many of us stimulate that fight-or-flight response^(it) not just occasionally, under exceptional circumstances, but daily, in our offices. Eighty-five percent of U.S. adults consume some form of caffeine most days, with an average daily dose of 300 milligrams (roughly 27 ounces of coffee). Timely use of small amounts of caffeine can heighten our mental performance, but at such a high dose, caffeine is likely to throw off our sleep and energy cycles in the long term, altering the body's internal clock. At that point, many people go in search of products to help them sleep.

We frequently hear that drinking a small amount of coffee can be healthy. This is [Ⓑ] always based on the evidence that some coffee-drinking is a common behavior among long-lived, healthy populations. News stories tend to interpret this evidence optimistically, reporting that coffee may be good for you. In reality, it might just be an interesting correlation^(it). Randomized, controlled trials on nutrition are extremely difficult to conduct, as the effects of dietary changes are complex and often take years, if not a lifetime, to reveal themselves.

Those who claim that coffee is healthful tend to point to its high level of antioxidants⁽¹¹⁾.
But antioxidant supplements have not been proved to correlate with health or longevity.
Antioxidants represent a vast spectrum of substances. Vitamin E is an antioxidant, and
taking vitamin-E supplements has been shown to increase men's risk of prostate cancer⁽¹²⁾.

If coffee does have an effect on longevity, it is likely a result of something more global than the potential (11) of antioxidants—such as the fact that constant exposure to caffeine, even at low levels, suppresses (12) (in a world where most people eat more than is ideal). Or that it encourages (13) interaction—it inclines us to go out and do things with people—which itself is generally (14) to health. These are legitimately (15) results. But as with all (16), the comprehensive effect of caffeine on our (17) depends on how, and how much, we use it.

In 2013, a 24-year-old advertising copywriter (18) Indonesia died after prolonged sleep deprivation, collapsing a few hours (19) tweeting “30 hours of working and still going strong.” She went (20) a coma⁽¹³⁾ and died the next morning. A family acquaintance wrote (21) Facebook, “She died because (22) too much overtime work, and too much kratingdaeng attacked her heart.” Kratingdaeng is the Thai name for the product commonly known (23) Red Bull.

Lack of sleep is clearly linked to⁽¹⁴⁾ heart disease and strokes. Beyond that, the vitamin/caffeine/amino-acid concoctions⁽¹⁵⁾ known collectively⁽¹⁶⁾ as energy drinks have been implicated in⁽¹⁷⁾ thousands of emergency-room visits in recent years; energy-drink-related ER visits doubled from 2007-2011, according to the U.S. Substance Abuse and Mental Health Services Administration. For now, this is simply a correlation, with a plausible explanation that one could be causing the other; it is not proof of harm. And yet, notes Michael Jacobson, the head of the Center for Science in the Public Interest, “there are several fatalities possibly related to energy drinks, and several lawsuits⁽¹⁸⁾. In some people, it appears to be due to underlying heart defects—when they get this dose of caffeine, they die.”

Although the FDA⁽¹⁹⁾ warns us rather unambiguously that “caffeine overdose is dangerous and can kill you,” I’ve not seen that happen, and Jacobson, a public-health advocate, confirms that except at extraordinarily high levels, isn't, to, caffeine, people,
known, healthy, kill.⁽²⁴⁾ It may not be the sole cause of hospitalizations⁽²⁰⁾ related to energy drinks. After all, many of the people who have been hospitalized after consuming energy

drinks are presumably also coffee drinkers, notes Jacobsen—but few, if any, ⁽²⁵⁾ acutely, coffee, made, by, have, ill, been.

(James Hamblin, *How to Sleep*, THE ATLANTIC January/February 2017 より。

ただし出題にあたり本文の趣旨を変えない範囲で一部改変した。)

(注) boulder : 大きな石 buzz : 興奮 psychoactive : 神経を活性化させる
neural : 神経の fight-or-flight response : 闘争・逃走反応
correlation : 関係 antioxidant : 抗酸化物質 prostate cancer : 前立腺がん
linked to : ~と関係がある concoction : 混合飲料 collectively : 総合的に
implicated in : ~に関わる lawsuit : 訴訟 FDA : 米国食品衛生局
hospitalization : 入院

設問 1. 本文中(1)~(10)に当てはまるものを A ~ J から選び, その記号で答えなさい。

- | | | | |
|----------|----------------|------------|-------------|
| A. lift | B. allow | C. induces | D. released |
| E. slows | F. blocking | G. sense | H. improve |
| I. jump | J. interfering | | |

設問 2. 本文中の下線部 ㉠ を日本語に訳しなさい。

設問 3. 本文中の下線部 ㉡ を日本語に訳しなさい。

設問 4. 段落 ㉢ に関する A ~ D の記載の中で正しいものをすべて選んで, その記号で答えなさい。

- A. Coffee is healthful because it contains a vast spectrum of antioxidant substances.
- B. The effects of antioxidant supplements have not been proved to have a positive connection with health.
- C. The effects of antioxidant supplements have been proved to have a positive connection with longevity.
- D. Vitamin-E supplements have been shown to have a negative connection with men's risk of prostate cancer.

設問 5. 本文中(11)～(17)に当てはまるものを A～G から選び, その記号で答えなさい。ただし, 重複はしない。

- A. positive B. health C. appetite D. effect
E. chemicals F. beneficial G. social

設問 6. 本文中(18)～(23)に当てはまるものを A～F から選び, その記号で答えなさい。ただし, 重複はしない。

- A. on B. into C. as D. in
E. of F. after

設問 7. 下線部 (24), (25) が適切な意味になるように, 単語を並べ替えなさい。

設問 8. 下記の英文 1～10 について, A～C の中で該当するものを選び, その記号で答えなさい。

- A. 本文で述べられている内容と一致している。
B. 本文で述べられている内容と一致していない。
C. 本文で述べられている内容では判断できない。

1. Coffee is the most popular non-alcoholic drink in the world.
2. Not only coffee but also soft drinks and many kinds of tea contain caffeine.
3. The fact that many healthy people around the world drink some coffee proves that drinking a small amount of coffee is beneficial for our health.
4. The precise effects of caffeine on our health are not easy to determine.
5. Energy drinks contain twice as much caffeine as equal amounts of coffee.
6. Energy drinks such as Red Bull are particularly popular among students who are studying for examinations.
7. The increase in energy-drink-related ER visits in recent years proves that the consumption of energy drinks can be harmful.
8. People who consume a lot of caffeine eventually become addicted to it.
9. Many of the people who have been hospitalized after consuming energy drinks also smoke cigarettes.
10. The author of the article is not convinced that caffeine consumption alone can have fatal consequences.