

香川大学

平成 25 年度

(医学部医学科 推薦入試)

問題冊子

教 科 等	ページ数
小 論 文 I	5

試験開始の合図があるまで、問題冊子を開かないこと。

解答の書き方

1. 解答は、すべて別紙解答用紙の所定欄に、はっきりと記入すること。
2. 解答を訂正する場合は、きれいに消してから記入すること。
3. 解答用紙には、解答と受験番号のほかは、いっさい記入しないこと。

注意事項

1. 試験開始の合図の後、解答用紙に受験番号を必ず書くこと。
2. 問題の内容についての質問には、いっさい応じないが、その他の用事があるときは、だまって手をあげて、監督者の指示を受けること。
3. 試験終了時には、解答用紙を机上の右側に置くこと。
4. 試験終了後、問題冊子及び下書き用紙は持ち帰ること。

問題 次の文章を読み、以下の間に日本語で答えなさい。

What has science fiction (SF) got to do with public health? In our opinion, more than is commonly believed.¹⁾ First of all, from a general point of view, its 'community perspective': like SF, public health (PH) focuses on populations rather than individuals. Indeed, even when SF is about individuals, the author has to draft the social context, which cannot be taken for granted, since SF—by definition—is about the unknown. Besides, in SF stories, the unknown social context is almost always what makes the situation unexpected and surprising; the future community scenario¹⁾ is the heart of the story, which gives it its meaning.

SF thus creates possible future worlds and, in describing their make-up, often covers aspects involving health issues, which pervade²⁾ the core of human society. SF's imaginary worlds almost always take into account the implications of technological development, which can have a great impact on health and has—more or less directly—been described in SF productions. In some ways, SF stories have anticipated several possible developments in public health and their implications.

For example, one area of health technology that has altered our relation with health is the development of pharmaceutical preparations³⁾: it often seems that in a certain omnipotent⁴⁾ conception of medicine there is a sort of expectation that for every disease there should be a drug to heal it. For what regards mood conditions, psychoactive⁵⁾ substances have been available in human societies since the dawn of time, but never before have hundreds of drugs affecting the central nervous system been discovered, experimented and used. Will we find the pill of happiness? Can we talk about 'medicine of happiness'? What impact could the fact that medicine has such an objective have on

our societies? One possible extreme development of this approach has been dealt with in Aldous Huxley's brilliant dystopian ⁶⁾ novel *Brave New World*, which can be read as an enlightening vision of the control of happiness by means of chemical substances.

The book describes a society that has made people's happiness its aim. This is achieved by controlling people's IQ and dispensing ⁷⁾ an antidepressant ⁸⁾ called *soma* free of charge so that no one is sad in this 'society of happiness'. But, as the misfit ⁹⁾ Bernard soon realizes, eliminating grief from human life also causes art to disappear, as well as deep relationships, and freedom is compromised too, when it is society that decides what your life is going to be like. The rationale of dystopia becomes clear when Mustapha Mond, one of the World Controllers, in his famous debate with the Savage, explains that people cannot find happiness by themselves and society has to create the conditions for this to happen, even if the price is sacrificing something in people's lives. But Bernard's reaction to this logic is mad yet lucid ¹⁰⁾ at the same time: 'I'd rather be myself ... myself and nasty. Not somebody else, however jolly.' And it is hard not to agree with Bernard when he claims the right even to be unhappy, not to dull his senses, to keep his passionate soul, to experience profound emotions, to make his own happiness the result of an inner pursuit, not of a biochemical ¹¹⁾ interaction.

The novel raises the question as to where the limit is between the appropriate and necessary use of substances acting on the nervous system to treat mood disturbances, and their use to avoid suffering, which could affect the subject's mental development to a certain extent. This issue involves aspects of an ethical ¹²⁾ nature, yet it also has major political implications: as technology advances, it has to be regulated by someone, and who should have this power? Undoubtedly the representatives elected by the population, but the question of who the

scientific advisers in this process should be still remains. In our opinion, PH—a branch of medicine overlapping with ethics and politics—should not be denied an important role in these matters.

Much more than drugs, *Brave New World* depicts¹³⁾ another future development with unimaginable consequences: advances in the field of genetics. The novel describes a eugenic¹⁴⁾ approach, the deliberate alteration of genetic balance, whereas SF narratives are usually about uncontrolled mutations¹⁵⁾, often due to the effects of radioactivity and nuclear wars. The most famous examples in SF films include the mutants¹⁶⁾ in *Blade Runner* (1982) or those in *Total Recall* (1990), both loosely inspired by two works by Philip K. Dick, respectively, the novel *Do Androids Dream of Electric Sheep?* (1968) and the short story *We Can Remember It For You Wholesale* (1966). Regardless of how these genetic mutations happen, SF has tried to imagine how this change could affect our future world. Once again, the question of who should help the decision-makers in the field of genetics is brought up. PH, with its overall view, should not delegate this complex issue to others, thinking it is not its business.^{B)}

Besides technological developments the PH implications of which have been anticipated by SF, SF has reflected deeply about technology itself. Every day technology is taking up a larger and larger chunk¹⁷⁾ of our lives. Many diagnostic¹⁸⁾ and therapeutic¹⁹⁾ processes require technological tools, and modern medicine would often get nowhere without them. Technology has replaced much human interaction in caring processes, mainly due to scientific advances, but also to the organization of health-care facilities and the economic issues that come into play when rationalizing health-care spending.

(後略)

(Orizio G, Gelatti U.: J Public Health (Oxf). 2010 より抜粋)

- 1) scenario: 筋書き、台本
- 2) pervade: ～に充満する、一面に広がる
- 3) pharmaceutical preparations: 調剤
- 4) omnipotent: 全能の
- 5) psychoactive: 精神に作用する
- 6) dystopian: 暗黒郷の
- 7) dispensing: 分配する
- 8) antidepressant: 抗うつ病薬
- 9) misfit: うまく順応できない人
- 10) lucid: 明快な
- 11) biochemical: 生物化学的な
- 12) ethical: 道徳上の
- 13) depict: 描写する
- 14) eugenic: 優生遺伝学的な
- 15) mutation: 突然変異
- 16) mutant: 突然変異の
- 17) chunk: かなりの量
- 18) diagnostic: 診断上の
- 19) therapeutic: 治療法の

問1 下線部A)の理由を、本文の内容に即して300字以内でまとめなさい。

問2 下線部B)の意味する内容を、100字以内で説明しなさい。

香川大学

平成 25 年度

(医学部医学科 推薦入試)

問題冊子

教 科 等	ページ数
小 論 文 II	2

試験開始の合図があるまで、問題冊子を開かないこと。

解答の書き方

1. 解答は、すべて別紙解答用紙の所定欄に、はっきりと記入すること。
2. 解答を訂正する場合は、きれいに消してから記入すること。
3. 解答用紙には、解答と受験番号のほかは、いっさい記入しないこと。

注意事項

1. 試験開始の合図の後、解答用紙に受験番号を必ず書くこと。
2. 問題の内容についての質問には、いっさい応じないが、その他の用事があるときは、だまって手をあげて、監督者の指示を受けること。
3. 試験終了時には、解答用紙を机上の右側に置くこと。
4. 試験終了後、問題冊子及び下書き用紙は持ち帰ること。

問題 以下の問に答えなさい。

問 1. 水の昇華について物質の三態の観点から 200 字以内で説明しなさい。

問 2. (1) 図 1 のような半透膜で仕切られた U 字管に水とスクロース水溶液を水面が揃うように入れた。このあとどのように変化していくか 150 字以内で説明しなさい。

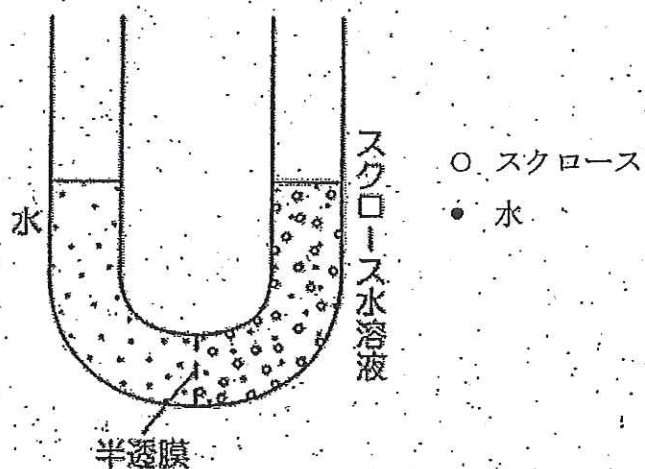


図 1.

(2) 毛細血管壁も半透膜であることから、毛細血管内外の水の移動が生じる。図 2 に示したように、血液中のタンパクとしてアルブミンが存在する。アルブミンは、血管外の水である組織液には多くは存在しない。このことを参考に毛細血管内外の水の移動について 80 字以内で説明しなさい。

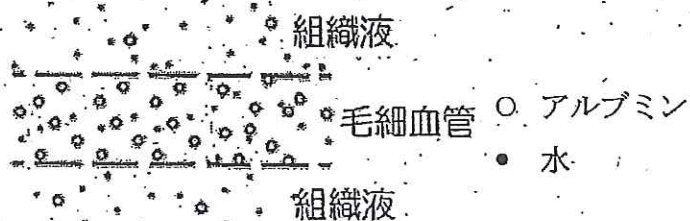


図 2.

(3) むくみ（浮腫）は、組織に水が必要以上に貯まった状態である。アルブミンがどのように変化するとむくみになるか、80字以内で説明しなさい。

問3 生態系を考えると水は重要になるが、工場から排水としてリンや窒素が河川に流入した場合、藻類が大量発生する。この現象を富栄養化というが、この大量発生した藻類を除去しないと生態系に大きな影響を及ぼす。その理由を150字以内で説明しなさい。