

平成18年度 大学院博士(前期)課程入学者選抜学力試験

英 語
[60分]

注 意 事 項

1. 試験開始の合図があるまで、この問題冊子を開かないでください。
2. 問題は1ページから5ページにあります。ページ番号のついていない紙は下書き用紙です。
3. 解答用紙は4枚に分かれているので、すべての解答用紙の所定欄に受験番号と氏名をはっきりと記入してください。
4. 下書き用紙3枚と下書き用原稿用紙1枚が解答用紙と一緒にあります。
5. 試験中に問題冊子の印刷不明瞭、ページの落丁・乱丁および解答用紙の汚れ等に気がついた場合は、静かに手を上げて監督員に知らせてください。
6. 試験終了後、問題冊子および下書き用紙は持ち帰ってください。
7. 問題ごとに配点が記されています。

I 次の記事を読み、以下の問いに答えよ。(配点 60 点)

Paper's Natural Fingerprint Could Be Built-In Passport Protection

With identity theft on the rise, there is more reason than ever to ensure the authenticity of important documents such as passports and birth certificates.

① Now physicists in England have discovered that many items, including paper documents, plastic cards and product packaging, have intrinsic patterns that can be used for identification purposes. ② And because the configurations are virtually impossible to modify in a controllable manner, they could form the basis of a new tool in the fight against fraud.

All nonreflective surfaces are rough on a microscopic level. James D. R. Buchanan and his colleagues at Imperial College London report today in the journal *Nature* on the potential for this characteristic to “provide strong, inbuilt, hidden security for a wide range of paper, plastic or cardboard objects.” Using a focused laser to scan a variety of objects, the team measured how the light scattered at four different angles. By calculating how far the light moved from a mean value, and transforming the fluctuations into ones and zeros, the researchers developed a unique fingerprint code for each object. The scanning of two pieces of paper from the same pack yielded two different identifiers, whereas the fingerprint for one sheet stayed the same even after three days of regular use. Furthermore, when the team put the paper through its paces - screwing it into a tight ball, submerging it in cold water, baking it at 180 degrees Celsius, among other abuses - its fingerprint remained easily recognizable.

The team calculates that the odds of two pieces of paper having indistinguishable fingerprints are less than 10^{-72} . For smoother surfaces such as matte-finished plastic cards, the probability increases, but only to 10^{-20} . “Our findings open the way to a new and much simpler approach to authentication and tracking,” co-author Russell Cowburn remarks. “This is a system so secure that not even the inventors would be able to crack it since there is no known manufacturing process for copying surface imperfections at the necessary level of precision.”

(Adapted from Science News, *Scientific American.com*, 28th July 2005 issue.)

問1 下線部①, ②を日本語に訳せ.

問2 “Paper’s Natural Fingerprint”とは、何であり、どのように得られるものか、日本語で詳しく説明せよ（100～200字程度）.

問3 本文で提案されている方法が、なぜ“Built-In Passport Protection”になり得るのか、その理由を日本語で具体的にのべよ（200字～300字程度）.

II Read the following article and answer the questions. (配点 40 点)

Three Major Mistakes of Scientific Presentations

Scientists presenting their research work at a conference or other venue usually mean well, yet their presentations can be an impenetrable fog indeed. It is not that other professionals necessarily do better; public speaking is a difficult art for all. But when the subject matter is highly technical, the audience can more rapidly get discouraged. Here are three shortcomings I frequently witness on the part of scientists (and other presenters).

① _____

Scientists presenting at a conference typically report on a whole year of research in a mere 15 minutes: quite a challenge. As a result, most presenters simply try to cover too much detail, losing all but a few audience members in the process. These few - the experts in this very specific subject matter - are usually familiar with this content if they are up to date at all, so they hardly need it repeated. Numerous details thus serve only one person's need, that of the speaker trying to establish how incredibly clever (or painful) his research has been.

Beginners somehow believe they must mention in their presentation everything that is already written down in their proceedings paper. Not so, of course. Written documents are for conveying details accurately and lastingly. In contrast, oral presentations are for convincing an audience of key messages, not with detailed evidence, but with nonverbal communication.

② _____

Most audience members "get lost" in a presentation, not because they lack the knowledge or intelligence to comprehend the content, but because they lack a map. Oral presentations indeed lack the numerous visual clues orienting the readers of written documents, such as paragraphs, headings, or page layout. Most speakers do show a preview of their presentation (the map), but one that is usually too detailed and shown too early, so it is hard to remember. Few include truly helpful transitions

between points, indicating where they are on the map. Fewer still provide a recap of their main points before the conclusion (and those who did provide one eventually drop it because the chairperson said “two minutes left” about four minutes earlier).

The lack of structural clues and the sequential nature of slide shows too often make a well-built hierarchical structure look like a long, flat, undifferentiated path, one that will progressively disorient even the most attentive audience members.

③ _____

Professionals involved in long-term work, as scientists often are, too easily lose sight of the motivation for their work and of the outcome of it - precisely what most audience members are primarily interested in, especially in a presentation. Above all, they want to know the beginning and the end of the research story. Presentations that shun or under-develop both motivation and outcome, but jump at or stop with the work itself are self-centered, not audience-oriented.

By failing to relate to their audience at the beginning and at the end of their presentations, speakers fail to make a strong first impression and a lasting last impression. Taking the audience for granted, most presenters start with their name and the title of their talk. This title, which can easily run on four lines on a slide, is often so intricate that it requires further and immediate explanation, perhaps even a few definitions of terms. How attention-getting can it be? Similarly, too many speakers end their presentation because they run out of time or run out of things to say. How carefully prepared does it look? Effective presentations start and end in a forceful, relevant, audience-oriented way.

(Adapted from *IEEE Professional Communication Society Newsletter*, Vol. 49,
No. 3, pp.15-16, April 2005)

問 1 The three blank lines marked ① , ② and ③ indicate section headings.
Choose the appropriate one for ① , ② and ③, from the following (a) to (e).

- (a) Not Containing Large Blocks of Text
- (b) Neglecting the Beginning and the End
- (c) Simply Trying to Say Too Much
- (d) Having a Deep Interest in the Topic
- (e) Failing to Reveal the Structure

問 2 Summarize each section marked ① , ② and ③, in your own words in two or three English sentences.

問題は、このページで終了である。

解 答 冊 子

博士(前期)・英語

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受験番号									
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英語 解答用紙 (2)

問2

科目名

英語

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英語 (2)

氏名	
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英語 解答用紙 (3)

問3

科目名

英語

問題番号

I

点

英語 (3)

氏名

受験番号

英語 解答用紙 (4)

科目名

英語

問題番号

II

点

英語 (4)

問1

①		②		③	
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問2

① :

② :

③ :

(枠内に解答を書くこと)



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