

2025 年度春季 I 期 大学院歯学研究科入学試験
2024 年度第 1 回 大学院歯学研究科外国語試験 出題意図および解答・解答例

【出題の意図】

大学院歯学研究科における外国語試験は、英文読解、英作文、および英語論述形式の 3 つの形式から構成されています。

英文読解においては、限られた時間内に専門的な内容を正確に把握するために必要な能力を問うために実施されています。また、英作文においては、正確な文法や語彙の運用能力を図り、英語論述問題においては、論理的かつ正確な英文構成力に関して評価を行うものです。

歯学研究の最先端情報や学術論文の殆どが英語で発信されています。したがって、大学院の入学においても、英語試験により、英語論文を正確に読解し、研究動向を自ら把握できる基礎力を最低限担保することにより、大学院入学後の円滑な研究の遂行と学位論文の作成が可能になるものと考えられ実施されています。

※以下に記載しているものは解答例です。解答例以外にも正解とする場合があります。

【英語 A】

Q1.

Showa University Dental Hospital has a number of departments. Orthodontics focuses on improving function and appearance by correcting the alignment and occlusion of teeth. Oral surgery involves tooth extraction, the treatment of temporomandibular joint disorder and surgical procedures of the oral cavity and head/neck. Pediatric dentistry focuses on treating tooth decay and teaching tooth brushing to children. Periodontics focuses on the prevention and treatment of gum disease as well as providing regular check-ups after treatment.

Q2.

膵臓は、血糖値を調節するホルモンであるインスリンを産生する。インスリンを産生する細胞は β 細胞と呼ばれ、膵臓の中にあるランゲルハンス島にあります。体内のインスリンが不足すると、細胞は血液からグルコースを取り込めなくなる。その結果、血液中のグルコースレベルが上昇する。医師はこれを高血糖と呼ぶことがある。

【英語 B】

Q1. Why are the people with doctoral degree important?

People with doctoral degrees are important because they help contribute to the development of science, technology and industry

Q2. What is the plan by 2040 proposed by the Ministry of Education Culture, Sports, Science and Technology?

This plan is to increase the number of people who have doctoral degrees to 370 million people by 2024.

Q3. What is the purpose of this project by 2040 proposed by the Ministry of Education Culture, Sports, Science and Technology?

The purpose of this plan is to strengthen the industrial competitiveness of Japan by increasing the number of people with doctoral degrees.

Q4. In Japan, what is the current number of students entering doctoral programs compared to 2003?

The number of students continuing on to doctoral programs is currently 20% less than what it was in 2003.

Q5. What are the reasons for the results in question 4?

Please answer separately from the perspective of graduate students and the opinion of industry.

Many students are worried about finding a job after receiving their doctoral degree.

Some companies are reluctant to hire the people with doctoral degrees as they view these people as "hard-headed and inflexible."

Q6. What does an organization mainly consisting of researchers from prominent universities advocate?

Such as organization advocates that it's necessary to nurture personnel with a broad perspective who can serve as team leaders, rather than providing specialized technical education in an isolated manner.

Q7. What should the Japanese graduate schools do in the future?

Graduate schools need to break away from the old-fashioned educational style and strive to develop people who can effectively respond to the needs of society. Another issue is how to increase the number of women with doctoral degrees.

Q8. After reading this article, what kind of skills do you think you should have as a person with doctoral degree?

I think it is necessary to nurture personnel with a broad perspective who can serve as team leaders.

【英語 C】

Q1. What are the main functions of saliva mentioned in the text?

Saliva washes away food particles and bacteria, contains enzymes and antibacterial properties, neutralizes acids, supports remineralization of tooth enamel, aids healing of oral tissues, and provides lubrication for speech and swallowing.

Q2. Explain how saliva contributes to the protection and strengthening of teeth.

Saliva protects and strengthens teeth by neutralizing acids produced by bacteria, and protecting teeth from erosion. Additionally, calcium and phosphate present in saliva are essential for the remineralization of tooth enamel, which strengthens teeth and prevents cavities.

Q3. What is xerostomia, and what are its possible causes?

Xerostomia, also called “dry mouth”, is a reduction in saliva production, and it can be caused by certain medications, medical conditions like diabetes, and treatments such as radiation therapy.

Q4. List some methods to manage and alleviate the symptoms of dry mouth.

dry mouth can be managed by maintaining adequate hydration and good oral hygiene, chewing sugar free gum, using saliva substitutes, avoiding tobacco, alcohol, and caffeinated beverages, and using humidifiers at night.

Q5. Why are regular dental check-ups important, according to the text?

Regular dental check-ups are essential to monitor oral health and address issues related to saliva production. Also, dentists can recommend specific products and provide professional advice tailored to the individual needs of the patient, including prescription medications when necessary.

【英語 D】

In my PhD program, I would like to conduct fundamental research focused on the interactions between inflammation, immune responses, and tissue repair, with the goal of preventing periodontal disease and regenerating periodontal tissues. Periodontal disease is one of the primary causes of tooth loss worldwide, and its pathogenesis involves complex interactions between bacterial biofilms, the host immune system, and genetic susceptibility. I am particularly interested in elucidating how inflammation against periodontal pathogens affects the balance between tissue destruction and regeneration within periodontal tissues. To achieve this goal, I wish to study the mechanisms controlling the activation of osteoblasts and osteoclasts to regulate the balance of bone destruction mediated by inflammatory cytokines. Furthermore, by integrating molecular biology and bioengineering technologies, I aim to develop novel therapies that not only halt disease progression but also promote functional tissue regeneration. Ultimately, I aspire to contribute to establishing personalized periodontal disease treatment that restores the function of damaged periodontal tissues tailored to individual patients. This research will not only advance the fundamental understanding of periodontal disease but also evolve into translational research applicable to patient care in clinical practice. (the number of words: 184)