

群馬県立県民健康科学大学大学院

看護学研究科看護学専攻（博士後期課程）

2026年度 一般選抜・社会人特別選抜試験問題

外国語試験問題

群馬県立県民健康科学大学大学院

外国語科目試験問題 問題用紙

問題 次の文章を読んで後に続く問に答えなさい。

(前略)

The world is awash with plastic — 6 billion tons' worth. In 2019, 353 million tons of plastic waste were produced, with a tripling of that number to more than one billion tons predicted by 2060. More than 10,000 chemicals are present in plastics, including carcinogens and endocrine disruptors ^{注1)}. Plastics find their way into the human body in the form of tiny particles called microplastics (less than 5 mm in diameter) and nanoplastics (less than 1 μm in diameter). ①Microplastics and nanoplastics (MNPs) can arise from a variety of sources, including by design, as in the case of microbeads used in cosmetic and personal care products, or inadvertently, as the result of degradation of larger plastic products, such as through the laundering of synthetic clothes or abrasion of tires. MNPs are found everywhere on the planet, including the oceans, air and food supply.

MNPs enter the body mainly through ingestion or inhalation. ①For example, one might ingest MNPs by drinking liquid or eating food that has been stored or heated in plastic containers from which MNPs have leached, or by using toothpaste containing MNPs. ②One startling study found that infants may be exposed to high levels of microplastics by ingesting formula prepared in propylene feeding bottles.

The biological effects of MNPs have been researched for decades, mainly in studies of laboratory rodents and human cells. In rodent studies, microplastics have been shown to have detrimental effects on a wide variety of organs, including the intestine, lungs and liver, as well as the reproductive and nervous systems. ③More recently, MNPs have been found in a variety of tissues and organs in humans, including blood, lungs, placenta and breast milk.

The effects of MNPs on human health are just beginning to be documented. For example, a recent report described a potential link between MNPs present in blood vessels and cardiovascular disease. ④In samples of atherosclerotic plaques ^{注2)} that had been surgically excised from the carotid arteries of 304 people, plastic was detected in plaques from approximately half of this cohort, with polyethylene ^{注3)} in 150 of the samples and polyvinyl chloride ^{注4)} in 31 of them. Using electron microscopy, the researchers found jagged-edged particles, identified as MNPs, in the plaques. Deposition of plastic in the plaques was strongly associated with the development of subsequent cardiovascular disease: over the course of 34 months, people with evidence of MNPs in their plaques had a 4.5-fold higher risk of a composite endpoint ^{注5)} of nonfatal myocardial infarction, nonfatal stroke or death from any cause, relative to the risk for those without such evidence.

In another study focusing on a potential link between microplastics and inflammatory bowel disease, 15 types of microplastics were detected in human feces. ⑤The concentration of fecal

microplastics was higher in people with inflammatory bowel disease than in healthy people, and the level of fecal microplastics correlated with the severity of the disease. (後略)

- 注1) endocrine disruptors : 内分泌かく乱物質。生体内のホルモンのように振る舞い、身体機能を誤作動させる物質。
- 注2) atherosclerotic plaques : アテローム性動脈硬化プラーク
- 注3) polyethylene : ポリエチレン
- 注4) polyvinyl chloride : ポリ塩化ビニル
- 注5) composite endpoint : 複合エンドポイント。いくつかの評価項目を1つにまとめた指標。

出典 : 「Microplastics are everywhere — we need to understand how they affect human health」
Nature Medicine 30, 913 (2024) から引用文献を削除して一部掲載

- 問1 下線部④の Microplastics and nanoplastics (MNPs) は本文中でどのように定義されているか、日本語で記述しなさい。(横書き・80字以内)
- 問2 本文中で、**Microplastics and nanoplastics (MNPs)** はどのように生成されると説明されているか、日本語で記述しなさい。(横書き・160字以内)
- 問3 下線部①～⑤を日本語に訳しなさい。

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受験番号	氏名

問1

80

問2

100

160

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外国語試験問題 解答用紙2

受験番号	氏名

問3

①

②

③

④

⑤

得点

注 意 事 項 （外国語試験）

- 1 外国語の試験時間は、11時10分～12時40分です。
- 2 英和辞典の持ち込み及び使用を認めます（付箋等が貼られていないもの）。ただし、電子辞書の使用は認めません。
- 3 試験問題用紙の表紙が願書提出時の選抜区分であることを確認してください。
- 4 問題用紙は2枚、解答用紙は2枚です。下書きは用紙の余白をお使いください。
- 5 すべての解答用紙の所定の欄に、必ず受験番号・氏名を記入してください。
- 6 解答は、すべて解答用紙に記入してください。ただし、※印欄には記入しないでください。
- 7 問題用紙・解答用紙に不鮮明な部分や汚れなどがある場合は、声を出さずに手を挙げて、監督員の指示に従ってください。
- 8 試験中に質問や用便などの用件がある場合も、声を出さずに手を挙げて、監督員の指示に従ってください。
- 9 試験開始後は途中退室を認めません。
- 10 解答用紙を持ち帰ることはできません。
- 11 不正行為や、他の受験生に迷惑となる行為をした場合は、退場させることがあります。