

# 令和6年度特色入試問題

《農学部 地域環境工学科》

## 小論文試験

250点満点

### (注意)

1. 問題冊子および解答冊子は係員の指示があるまで開かないこと。
2. 問題冊子は表紙のほかに5ページある。
3. 解答冊子は問題ごとに1冊ずつある（全部で3冊ある）。  
それぞれの解答冊子は表紙のほかに各6ページある。
4. 試験開始後、解答冊子の表紙所定欄に受験番号・氏名をはっきり記入すること。  
表紙には、これら以外のことを書いてはならない。
5. 解答はすべて解答冊子の指定された箇所に記入すること。
6. 解答に関係のないことを書いた答案は無効にすることがある。
7. 解答冊子は、どのページも切り離してはならない。
8. 問題冊子は持ち帰ること。解答冊子は持ち帰ってはならない。
9. 解答は日本語で記入すること。

問題1 次の英文を読んで問1と問2に答えなさい。 (80点)

Rural households in developing countries typically pursue multiple livelihood strategies to diversify their sources of income and, as a result, women – together with men – are often simultaneously involved in a wide spectrum of activities. Their engagement ranges from being contributing family workers to being farmers on their own account; from being entrepreneurs running on- and off-farm businesses to being wage workers. Globally women comprise over 37 percent of the world's rural agricultural workforce, a ratio that rises to 48 percent for low-income countries, and their contribution is prominent in all agricultural subsectors (estimated based on the International Labour Organization models for 2020). They represent close to 50 percent of the world's 600 million small-scale livestock managers and about half of the labour force in small-scale fisheries. Moreover, these percentages likely underestimate women's full contribution to agriculture as their work, often unpaid, is not always adequately captured in official statistics.

Beyond being the backbone of rural economies, women also make a substantial contribution to food security and nutrition as they continue to be primarily responsible for domestic and care work at household and community level. Rural women often have a wealth of knowledge on natural resources, such as land, water and forests, as they are often in charge of their management, not only in their role as farmers, foresters and fisherfolk but also as primary providers of water, food and energy at the household and community level.

Despite this, across regions rural women still face major gender-based constraints that limit their potential as economic agents and their capacity to reap the full benefits of their work. The root cause of these discriminations lies in social norms, attitudes and beliefs, which shape how women and men are expected to behave, the opportunities that are offered to them and the aspirations they can pursue. Discriminatory sociocultural norms affect how policies and legal frameworks are formulated and implemented; who participates in decision-making processes and governance mechanisms; how rural institutions are managed; how service providers target their clients and prioritize their needs; and, ultimately, how resources are allocated and decisions are taken within households and communities.

As documented in the *State of Food and Agriculture 2010–11: Women in agriculture – Closing the gender gap for development* (SOFA 2010–11), and confirmed by more recent reports and studies, rural women and girls continue to find themselves at a disadvantage compared with

their male counterparts in their access to essential assets, resources, services and opportunities. Land is perhaps the most important economic asset for which this gender gap is evident: women still account for less than 15 percent of agricultural landholders in the world. Disparities are also noticeable when it comes to different types of agricultural support services, be it extension, financial or business development. While the need to disseminate innovative technologies and sustainable practices is increasing by the day, rural women still struggle to access simple life-changing technologies. A considerable gender gap persists, for example, in relation to ownership of mobile phones and use of the internet: women in low- and middle-income countries are 10 percent less likely than men to own a mobile phone and 23 percent less likely to use mobile internet. Similarly, gender inequalities are evident in agricultural labour markets: rural women are more likely than men to hold low-wage, part-time, seasonal employment, without legal or social protection, and they tend to be paid less even when they are more educated and more qualified than men.

・・・（後略）・・・

（出典：FAO. 2020. *FAO Policy on Gender Equality 2020–2030*. Rome.）

**問1** 開発途上国の農村地域が抱える問題について、本文で述べられている基本的な構図を、図を交えて説明しなさい。

**問2** 本文では、ジェンダー間格差の見られる例として、携帯電話の所有とインターネットの使用が挙げられている。携帯電話やインターネットが、低中所得国の農村地域においてどのように活用されるべきか、本文の内容を踏まえつつ、あなたの考えを説明しなさい。

**問題2** 左右対称な4輪車両（前軸2輪と後軸2輪で、全て同じ車輪の車両）が真っすぐ前進で坂道を登っていく場合、その車両が前輪駆動の場合と後輪駆動の場合のそれぞれで、登ることが可能な坂道の最大の角度について検討しなさい。車両の運動の様子を図示するとよい。

ただし、駆動しない車輪の転がり抵抗は十分小さいものとして無視してよい。また駆動力については十分あるものとする。（90点）

問題3 次の英文を読んで問1～問3に答えなさい。 (80点)

英文は出典のみ公開する。

出典： Ian S. Robinson. 2010. Discovering the Ocean from Space: *The Unique Applications of Satellite Oceanography*. Springer を一部改変

問1 海洋観測人工衛星を用いて海面水温をどのように計測しているのか、英文を参考にして150字程度で説明しなさい。

問2 下線部に関して、ある海面水温に対する輝度温度が大気中の水蒸気量によって変化する一次関数の式を提案しなさい。また、2つのチャンネル  $i, j$  で計測される異なる輝度温度を用いて、海面水温を求める式を導きなさい。なお、チャンネルの違いは、検出に用いる波長の違いを意味する。

問3 海面水温を求める式(1)において、右辺第2項が用いられる理由を150字程度で考察しなさい。