

一 般 科 目

英 語

注 意 事 項

- 1 試験開始の合図があるまで、この問題用紙を開いてはいけません。
- 2 問題用紙は4ページで、解答用紙は2ページあります。試験開始の合図があつてから確かめなさい。
- 3 監督者の指示に従い、解答用紙の各ページに受験番号を記入しなさい。氏名を書いてはいけません。
- 4 文字などの印刷に不鮮明なところがあった場合は、手を挙げて監督者に知らせなさい。
- 5 解答はすべて解答用紙に記入しなさい。ただし、「総得点欄」「採点欄」「得点欄」に記入してはいけません。
- 6 問題用紙の余白は下書きとして利用してかまいません。
- 7 試験終了後、配付された問題用紙は持ち帰りなさい。

問題用紙

(英語)

問題 1 次の英文はオーストラリアに関する説明です。下線部(1)から(5)について、文脈に最も合うように、[]内の要素を並べ替え、記号を用いて答えなさい。ただし、文頭にくる語も小文字で示してあります。(※文末に注あり)

Example:

All of us can see [(a)nectar (b)bees (c)to gather (d)flying] in the garden.

Answer:

All of us can see [(b) - (d) - (c) - (a)] in the garden.

Australia is a dry country with very limited water resources. With an average annual rainfall of 469 millimetres, Australia is the driest habitable continent on Earth—only Antarctica is drier.

Seventy per cent of our continent is classified as arid with little or no precipitation. Australia also has a highly variable climate, (1) [(a)rain (b)which (c)can (d)that (e)means] often fall in deluges or not at all. For every 10 years there are about three years of good rainfall, four years of average rainfall and three years of poor rainfall.

Rainfall distribution is uneven. Some parts of Australia receive large amounts of rain, while (2) [(a)receive (b)little (c)areas (d)other (e)very]. Rainfall is also seasonal, falling at different times of the year. Tully is the wettest place in Australia, with an average annual rainfall of 4000 millimetres. Lake Eyre has the lowest average annual rainfall of just 100 millimetres.

Evaporation in Australia is so high and the topography so flat, that water flows out from the land to the sea in only just over half of the continent—the rest (3) [(a)towards (b)inwards (c)middle (d)the (e)flows].

Australia has the smallest amount of run-off—water entering streams, rivers and dams—of any country on Earth. (4) [(a)that (b)small amount of run-off (c)it (d)this (e)is] makes the country so dry. This means little usable water ends up in rivers. Only about 48 millimetres of Australia's average rainfall runs off as surface water (i.e. along the surface). This is the same amount as New Zealand, even though Australia is 28 times larger in area.

Eighty per cent of the water used by Australians is obtained from surface water and 20 per cent from groundwater sources.

Every major city along the east coast of Australia, as well as Perth in the west, faces the problem of a growing population coupled with a decline in rainfall. As our climate changes we will need to search for sources of water other than rainfall. The Victorian government must either draw water from the rivers to the north of Melbourne or find a new source of water for its expanding population. This is why the government has proposed a desalination plant. (5) [(a)into (b)desalination (c)drinking water (d)converts (e)seawater]. The process involves heating seawater to remove the salt. Imagine boiling a kettle full of seawater on the stove and then collecting the steam. If you cooled this steam, you would produce fresh drinking water, and the salt would remain in the kettle.

(adapted from *Humanities Alive*)

注 habitable: 住める arid: 雨が少ない, 乾燥した precipitation: 降水 deluge: 多量
uneven: 一様でない evaporation: 蒸発 topography: 地形

問題用紙

(英語)

問題2 次の英文は星に関する説明です。下線部(1)から(5)に入れるのに最も適切なものを下の(a)から(e)の中から一つずつ選び、その記号で答えなさい。(※文末に注あり)

The sun is our special star, but there are trillions more stars in the universe. How does a star begin its life?

(1). Gravity is the invisible force that pulls objects together. Without gravity, everything (including human beings) would float away! Clouds in space formed by gravity are called nebulae. Sometimes nebulae are called “star nurseries.” A nebula begins to heat up as it revolves. This is a baby star, or protostar.

Once the protostar gets hot enough, it releases energy—what we call starlight. From Earth, stars may look like they are twinkling—but that’s just an illusion. Out in space, stars shine steadily. (2). That’s what makes them look like they are glittering.

Stars grow to different sizes. The size of the star is what determines how long the star will live and also how it will die. Our sun—remember, it is a medium-size star—will likely live for another five billion years. (3). It will then be a red giant. That will be the sun’s grand finale. Once the red giant runs out of fuel, it will shrink down to a fraction of its original size and become a white dwarf. Then, a few billion years later, the sun will be nothing but a black dwarf—a cold, dark cinder that gives off no light.

What happens to stars larger than our sun? (4). They become supernovas and explode in a huge flash of light. Supernovas burn millions of times brighter than average stars. Supernovas are rare, so astronomers get very excited by them. You don’t have to be an astronomer to spot one. In 2008, a teenager from New York spotted a supernova using a small telescope. She was the youngest person to find one!

As for the biggest stars, some turn into a black hole when they die. (5)! That pinhead has very strong gravity and sucks *everything* (even light) around it inside, just like a drain sucks water. If another star gets too close to a black hole, it will get sucked into it, too. Do people on Earth have to worry about getting sucked into a black hole? No. Scientists don’t think there are any black holes close enough to Earth for that to happen.

(adapted from *Where Are the Constellations?*)

- (a) Its gas will burn up, but it will continue to grow to more than 100 times bigger
- (b) Some have deaths that are more dramatic than that of a medium-size star
- (c) As their light travels through Earth’s atmosphere, it gets bent by layers of hot and cold air
- (d) They get smaller and denser until they become tinier than the head of a pin
- (e) Over millions of years, gravity squeezes dust and gas particles together into clouds

注 trillion: 1 兆 twinkle: (星の光などが)またたく glitter: ぴかぴか光る dwarf: 矮星(わいせい)
cinder: 燃え殻 supernova: 超新星 astronomer: 天文学者

問題用紙

(英語)

問題 3 次のデータに基づいて、下の英文の下線部(1)から(8)に入る最も適切な国名を表の中から選び、英語で記入しなさい。

Total renewable energy produced

(unit: GWh)

Countries	2016	2018	2020	2022
Afghanistan	1,061	921	1,054	832
Angola	6,442	11,524	14,004	14,407
Egypt	16,121	15,942	23,972	26,488
Italy	108,035	114,427	116,927	100,479
Jordan	865	2,162	4,282	5,680
the Netherlands	14,781	18,882	32,731	48,315
Saudi Arabia	46	219	834	2,839
Singapore	877	903	1,010	1,719
Spain	104,652	103,905	113,783	122,960
Venezuela	63,069	65,337	67,219	68,537

(adapted from *Renewable Energy Statistics 2024*) © IRENA

The table above shows the total renewable energy produced for 10 countries. Figures are provided for the years 2016, 2018, 2020, and 2022.

If we consider changes over time, we can see that the general trend is for countries to increase their production of renewable energy. Of the countries listed, only (1) and Italy produced less renewable energy in 2022 than they did in 2016. From 2016 to 2018, the figure decreased for just three countries: Afghanistan, Spain, and (2).

On the other hand, from 2016 to 2020, the figure for the Netherlands and (3) more than doubled, while the figure for Jordan was almost five times as great, and that of Saudi Arabia increased more than 18-fold. In fact, the figure for (4) in 2016 was less than one-sixtieth of the figure for the same country in 2022!

With respect to comparison of the various countries relative to each other, two points are worth noting. First, the gap between countries generally decreased over time. For example, in 2016, the country with the second lowest figure, (5), produced no less than 18 times that of the country with the lowest figure; by 2022, that number was almost exactly double that of the same country.

Second, the overall ranking of the countries did not remain exactly the same but was subject to change. Thus, we see that (6) boasted the highest figures for the years 2016, 2018, and 2020; by 2022 that honor belonged to (7). More dramatically, while the figure for (8) was about 19 times that of Saudi Arabia in 2016, by 2022 Saudi Arabia had a higher figure.

問題用紙

(英語)

問題 4 次の工学に関する説明を読み、下の問いに答えなさい。(※文末に注あり)

We know from everyday life that things don't always turn out as we want. This is also true of engineering—indeed, making decisions in everyday life has much more in (ア) with engineering practice than may seem at first sight. Both require us to use common sense in solving problems. We have to decide what we want, what we think we know, how we may achieve what we want, what actually to do, and finally what we think might be the consequences. We know if things don't work (イ) as we hoped, then we will be affected in all sorts of ways—varying from minor upset to deep and major harm. Engineering decisions, however, affect many more people than do our everyday ones and may expose them to all kinds of risks—including death. So, quite rightly, what engineers do is closely (1) scrutinized and can, ultimately, be tested in a court of law as a duty of care.

Engineering is (ウ)—it is about creating tools that work properly, which simply means that they are fit for their intended purpose. Just as our everyday decisions are constrained by financial, social, political, and cultural situations, so are (2) those made by engineers. Perhaps the most obvious constraint is (エ) because almost all engineering is a business activity. Engineering activity must be affordable, but the predictability of final cost is almost as important as the amount. Politics is an example of a less obvious constraint. For example, natural hazards such as earthquakes and wind storms happen all over the world—but when they occur in regions where buildings have not been properly engineered, the consequences are much more devastating than they should be. The large-scale loss of life that happened in Haiti in 2010 could have been avoided if the right technology had been in place—but the reason (3) it wasn't is a political issue.

(adapted from *Engineering: A Very Short Introduction*)

注 constrain: ～を制限する devastating: 壊滅的な Haiti: ハイチ(国)

問 1 (ア)から(エ)に入れるのに最も適切なものを、それぞれ下の(a)から(d)の中から一つずつ選び、その記号で答えなさい。

- | | | | |
|-----------------|---------------|-----------------|------------------|
| (ア) (a) common | (b) touch | (c) comparison | (d) contrast |
| (イ) (a) down | (b) in | (c) up | (d) out |
| (ウ) (a) obvious | (b) practical | (c) progressive | (d) conservative |
| (エ) (a) finance | (b) society | (c) politics | (d) culture |

問 2 下線部(1)の scrutinized の意味に最も近いものを、下の(a)から(d)の中から一つ選び、その記号で答えなさい。

- (a) criticized (b) overlooked (c) examined (d) noticed

問 3 下線部(2)の those は何を指すか。本文中からそのまま抜き出さない。

問 4 下線部(3)の it が指す内容として最も適切なものを、下の(a)から(d)の中から選び、その記号で答えなさい。

- (a) Haiti (b) place (c) a less obvious constraint (d) the right technology