

第一級総合無線通信士「英語」試験問題

5問 1時間30分

1. 次の英文を読み、それに続く設問A-1からA-5までに答えなさい。解答は、それぞれの設問に続く選択肢1.から3.までの中から答えとして最も適切なものを一つずつ選び、その番号のマーク欄を黒く塗りつぶしなさい。

The amount of man-made heat energy absorbed by the seas has doubled since 1997, a study released Monday shows. Scientists have long known that more than 90% of the heat energy from man-made global warming goes into the world's oceans instead of the ground. And they've seen ocean heat content rise in recent years. But the new study, using ocean-observing data that goes back to the British research ship Challenger in the 1870s and including high-tech modern underwater monitors and computer models, tracked how much man-made heat has been loaded in the oceans in the past 150 years.

The world's oceans absorbed approximately 150 zettajoules of energy from 1865 to 1997, and then absorbed about another 150 in the next 18 years, according to a study published Monday in the journal Nature Climate Change. Because there are decades when good data wasn't available and computer simulations are involved, the overall figures are rough but still are reliable, the study's authors said. Most of the heat has been trapped in the upper 2,300 feet (700 m), but with every year the deeper oceans also are absorbing more energy, they said. The study's authors and outside experts add that it's not the raw numbers that bother them. It's how fast those numbers are increasing. Since 2000, in particular, the rate of change is really starting to accelerate.

Because the oceans are so vast and cold, the absorbed heat raises temperatures by only a few tenths of a degree, but the importance is the energy balance, the study's lead author Peter Gleckler, a scientist at Lawrence Livermore National Laboratory, and his colleagues said. When the oceans absorb all that heat it keeps the surface from getting even warmer from the heat-trapping gases released by the burning of coal, oil and gas. The warmer the oceans get, the less heat they can absorb and the more heat stays in the air and on land surface, the study's co-author, Chris Forest at Pennsylvania State University, said. These findings have potentially serious consequences for life in the oceans as well as for patterns of ocean circulation, storm tracks and storm intensity.

One outside scientist, Kevin Trenberth, climate analysis chief at the National Center for Atmospheric Research, also has been looking at ocean heat content and he said his ongoing work shows the Gleckler team "significantly underestimates" how much heat the ocean has absorbed.

<注> 1 zettajoule=10²¹ joules joule はエネルギーの単位 trap 閉じ込める ocean circulation 海洋大循環
ongoing 進行中の

(設問)

A-1 Where do scientists believe that most of the heat energy caused by man-made global warming goes?

1. Most of the heat energy caused by global warming is directed into the ground.
2. Scientists are sure that the earth's atmosphere absorbs almost all of the heat energy caused by global warming.
3. Most of the heat energy caused by man-made global warming eventually goes into the oceans.

A-2 According to a study published in the journal Nature Climate Change, how has the amount of heat energy absorbed by the earth's seas changed since 1997?

1. Since 1997, the seas have not absorbed so much heat energy as before.
2. Only half as much heat energy is now being absorbed by the seas as before 1997.
3. The seas have absorbed about the same amount of heat energy since 1997 as they had from 1865 to 1997.

A-3 How do the study's authors describe their data?

1. They say that their data is very accurate because of the computer simulations.
2. They claim that their data gives a complete record of the last 150 years.
3. They propose that although there are some problems, the data is still acceptable.

A-4 What is the main concern raised by the data in the study?

1. The biggest concern is how quickly the change is taking place.
2. For most experts, the biggest issue emerging from the study is the amount of heat energy.
3. Some scientists are very worried that the rise in heat energy is only seen in deep ocean waters.

A-5 According to Chris Forest, what happens when the oceans get warmer?

1. As the oceans get warmer, temperatures on the land surface start to fall.
2. Even if the oceans get warmer, this doesn't affect temperatures on the land at all.
3. He believes that warmer oceans cause land and air temperatures to stay warmer, too.

2. 次の英文A-6からA-9までは、無線通信業務に関する国際文書の規定文の趣旨に沿って述べたものである。この英文を読み、それに続く設問に答えなさい。解答は、それぞれの設問に続く選択肢1.から3.までの中から、答えとして最も適切なものを一つずつ選び、その番号のマーク欄を黒く塗りつぶしなさい。

A-6 All aircraft should be equipped to maintain good communications with the RCC (Rescue Coordination Center) and aeronautical SAR (Search and Rescue) facilities involved. Designated SAR aircraft engaged in SAR operations at sea should be equipped to communicate with vessels and survival craft.

(設問) What kind of equipment is required for SAR aircraft designated for operations at sea?

1. All such aircraft need to be able to communicate with vessels and survival craft.
2. SAR aircraft designated for operations at sea need to have up-to-date communication facilities.
3. Aircraft designated for SAR operations at sea have the same requirements as all aircraft.

A-7 Each rescue coordination center shall maintain up-to-date information, especially concerning search and rescue facilities, and communications relevant to search and rescue operations in its area.

(設問) What kind of information is especially important at a rescue coordination center?

1. A rescue coordination center must keep information concerning all past rescue operations in its area.
2. A rescue coordination center should prioritize information about facilities related to search and rescue operations in its area.
3. A rescue coordination center is not required to keep information relating to up-to-date search and rescue facilities.

A-8 Every candidate for certification as an officer in charge of a navigational watch on ships of 500 gross tonnage or more shall at least hold the appropriate certificate for performing VHF radiocommunications in accordance with the Radio Regulations.

(設問) What is the minimum requirement for certification of officers in charge of a navigational watch on ships of 500 gross tonnage or more?

1. On a ship of 500 gross tonnage or more, the officer in charge of a navigational watch may issue certification to any candidate.
2. A person in charge of a navigational watch on such a ship should be familiar with the Radio Regulations, at least.
3. For ships of 500 gross tonnage or more, the person in charge of a navigational watch must possess the right certificate for VHF radiocommunications.

A-9 At least 3 two-way VHF radiotelephone apparatus shall be provided on every passenger ship and on every cargo ship of 500 gross tonnage and upwards. At least 2 two-way VHF radiotelephone apparatus shall be provided on every cargo ship of 300 gross tonnage and upwards but less than 500 gross tonnage.

(設問) What is the baseline radiotelephone apparatus requirement for a cargo ship of 400 gross tonnage?

1. A cargo ship of 400 gross tonnage must have at least 2 two-way VHF radiotelephone apparatus.
2. A cargo ship of 400 gross tonnage is not required to be provided with any VHF radiotelephone apparatus.
3. A cargo ship of 400 gross tonnage is required to have a minimum of 3 two-way VHF radiotelephone apparatus.

3. 次の設問B-1の日本語に対応する英訳文の空欄（ア）から（オ）までに入る最も適切な語句を、その設問に続く選択肢1.から10.までの中からそれぞれ一つずつ選びなさい。解答は、選んだ選択肢の番号のマーク欄を黒く塗りつぶしなさい。

（設問）

B-1 既に、人工知能が、産業、医療からスポーツなどの広い分野で重要な役割を果たしている。一般的に、これらのコンピューターは自分で考える能力はないと思われていたが、相手の手を読まなければならない囲碁の対局で、今やプロの棋士を打ち負かすこともある。

Artificial intelligence already (ア) key roles in wide-ranging (イ) from industry and medicine to sport. Generally, these computers are not thought to have the ability to think for (ウ) but a computer has now even succeeded (エ) defeating a professional player in the game of Go, which does (オ) the ability to anticipate the other player's moves.

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| 1. bring | 2. fields | 3. goes |
| 4. grounds | 5. in | 6. of |
| 7. oneself | 8. plays | 9. require |
| 10. themselves | | |

4. 次の設問B-2の日本語に対応する英訳文の空欄（ア）から（オ）までに入る最も適切な語句を、その設問に続く選択肢1.から10.までの中からそれぞれ一つずつ選びなさい。解答は、選んだ選択肢の番号のマーク欄を黒く塗りつぶしなさい。

（設問）

B-2 日本の研究者たちが太平洋で行った深海調査で、レアメタルを含んだ岩石が小笠原諸島付近の海底で広く存在しているのが分かった。現在、日本は最先端の工業製品の製造に欠かせないレアメタルを輸入に頼っているが、近い将来、その必要がなくなるかもしれない。

A deep-sea survey in the Pacific Ocean by Japanese researchers has found rocks (ア) rare metals across wide areas of the sea bed near the Ogasawara Islands. Japan (イ) has to import the rare metals which are (ウ) for the manufacture of high-tech industrial products but this may no (エ) be necessary in the (オ) future.

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| 1. better | 2. containing | 3. currently |
| 4. distant | 5. essential | 6. longer |
| 7. near | 8. original | 9. providing |
| 10. temporarily | | |

5. 次の設問B-3の日本語に対応する英訳文の空欄（ア）から（オ）までに入る最も適切な語句を、その設問に続く選択肢1.から10.までの中からそれぞれ一つずつ選びなさい。解答は、選んだ選択肢の番号のマーク欄を黒く塗りつぶしなさい。

（設問）

B-3 多くの大型船舶、とくに漁船、およびほとんどすべての小型船舶には、2182 kHzを使用する設備がある。輸送用航空機には、2182 kHzで送信できるものがあり、また海上の捜索救助活動用に指定された航空機は、この周波数を持つよう要求される。

Many vessels, especially fishing vessels, and (ア) all ships, are (イ) to use 2182 kHz. Some (ウ) aircraft can transmit (エ) 2182 kHz, and aircraft designated for maritime search and rescue (オ) are required to carry this frequency.

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| 1. closely | 2. equipped | 3. instructed |
| 4. manuals | 5. nearly | 6. on |
| 7. operations | 8. sending | 9. to |
| 10. transport | | |