

第二級総合無線通信士「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。

Many animals can glow in the dark. Fireflies famously blink on summer evenings. But most animals that light up are found in the depths of the ocean. In a new study, scientists report that deep-sea corals that lived 540 million years ago may have been the first animals to glow, far earlier than previously thought. "Light signalling is one of the earliest forms of communication that we know of — it's very important in deep waters," said Andrea Quattrini, a co-author of the study published Tuesday. Today, marine creatures that glimmer include some fish, squid, octopuses, jellyfish, even sharks — all the result of chemical reactions. Some use light to startle predators, "like a burglar alarm," and others use it to lure prey, as anglerfish do, said Quattrini, who is curator of corals at the Smithsonian National Museum of Natural History. Still other animals use light as a beacon to find mates.

Many deep-sea soft coral species light up briefly when bumped — or when stroked with a paintbrush. That's what scientists used, attached to a remote-controlled underwater rover, to identify and study luminous species, said Steven Haddock, a study co-author and marine biologist at the Monterey Bay Aquarium Research Institute. For corals, scientists aren't sure if this luminous reaction is meant to attract or repel other organisms, or perhaps both. But its frequency suggests that it serves a crucial function in many coral species, said Danielle DeLeo, a study co-author and evolutionary marine biologist at the Smithsonian.

But how long have some coral species had the ability to glow? To answer this question, the researchers used genetic data from 185 species of luminous coral to construct a detailed evolutionary tree. They found that the common ancestor of all soft corals today lived 540 million years ago and very likely could glow. That date is around 270 million years before the previously earliest known example: a glowing prehistoric shrimp. It also places the origin of light production to around the time of the Cambrian explosion, when life on Earth evolved and diversified rapidly — giving rise to many major animal groups that exist today.

<注> firefly ホタル coral サンゴ glimmer かすかに光る squid イカ octopus タコ jellyfish クラゲ
predator 捕食者 burglar alarm 泥棒警報機 lure おびき寄せる anglerfish チョウチンアンコウ
curator 学芸員 rover 探査機 luminous 光を発する repel 追い払う crucial 重要な
evolutionary 進化の genetic 遺伝子の Cambrian カンブリア紀の diversify 多様化する

(設問)

A-1 Which of the following statements is correct regarding glowing sea animals?

1. All kinds of coral glow but no kind of shark does.
2. All deep-sea creatures except for sharks and anglerfish glow.
3. Glowing sea animals include some corals and some deep-sea fish such as anglerfish.

A-2 According to Steven Haddock, what characteristic of glowing soft corals do researchers use for identification and study purposes?

1. Deep-sea soft coral species glow when they are bumped, so the researchers make their underwater rover hit them to examine whether they glow.
2. Deep-sea soft coral species glow when they are stroked with a paintbrush, so the researchers attach one to the underwater rover to examine them.
3. Deep-sea soft coral species react to light beams for communication, so the researchers have their undersea rover emit light to check whether the corals glow.

A-3 What have the researchers concluded about the meaning of the corals' luminous reaction?

1. They are quite sure that the reaction attracts other creatures but does not repel their enemies.
2. They are quite sure that the reaction repels natural enemies but does not attract other sea creatures.
3. They are not sure of the purpose but think it may serve some important function in many coral species.

A-4 How did researchers estimate when coral acquired the ability to glow?

1. They constructed a detailed evolutionary tree using genetic data from luminous coral species to find the common ancestor of all living soft corals.
2. They examined the genetic data of all living glowing deep-sea corals and found old fossils of corals with similar genetic features.
3. They examined the genetic data of prehistoric shrimp that glowed and found old fossils of corals with similar genetic features.

A-5 According to the article, in what order did the ability to glow emerge in marine creatures?

1. The prehistoric shrimp acquired the ability to glow before the common ancestor of all soft corals.
2. The common ancestor of all soft corals acquired the ability to glow before the prehistoric shrimp.
3. The prehistoric shrimp and the common ancestor of all soft corals started to glow almost at the same time.

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 Aircraft, when conducting search and rescue operations, are permitted to operate digital selective calling (DSC) equipment on the VHF DSC frequency 156.525 MHz.

(設問) In what situations may aircraft use digital selective calling equipment on 156.525 MHz?

1. They are allowed to use it in search and rescue operations.
2. They may use it at any time so long as they choose the frequency.
3. They are permitted to operate it except in search and rescue operations.

A-7 Every radio operator shall, for continuing seagoing service on board ships for which special training requirements have been internationally agreed upon, successfully complete approved relevant training.

(設問) What must the radio operator do to continue seagoing service which has special training requirements in accordance with an international agreement?

1. The operator shall set the special training requirements.
2. The operator shall agree to the international requirements.
3. The operator shall complete the relevant training successfully.

A-8 A record shall be kept, to the satisfaction of the Administration and as required by the Radio Regulations, of all incidents connected with the radiocommunication service which appear to be of importance to safety of life at sea.

(設問) What incidents connected with the radiocommunication service and thought to be important shall be kept on record?

1. All incidents related to radio operations at sea
2. All occurrences having significance for safety of life at sea
3. All matters of importance except for those concerning safety of life at sea

A-9 On receiving a distress alert, the radio operator on watch should alert the master and, if appropriate, the radio operator designated as having primary responsibility for radiocommunications during distress incidents.

(設問) What should the radio operator on watch do on receiving a distress alert?

1. The operator should warn the master or the person responsible for radiocommunications soon after the distress incidents are over.
2. The operator should immediately warn the master as well as the radio operator who is responsible for coordinating the rescue operation during distress incidents.
3. The operator should immediately warn the master and, if necessary, the person with the main responsibility for radiocommunications during distress incidents.

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9.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 世界初となるアンモニア動力船が処女航海を無事に完了したと、ニューヨークに拠点を置くスタートアップ企業が発表した。そのタグボートは同社の新たなアンモニア電力システムを搭載し、ハドソン川を航行した。その技術は世界の炭素排出量を削減し、海運業界を2050年までに炭素排出を実質ゼロにするというIMOの目標に近づけるための重要な一歩を示している。

A New York-based startup company has announced that the world's first ammonia-powered vessel has successfully completed its (ア) voyage. The tugboat was (イ) with the company's new ammonia-to-electrical power system and was sailed on the Hudson River. The technology marks a significant step for reducing (ウ) carbon emissions and moving the maritime industry (エ) to the IMO's target of net-zero carbon emissions (オ) 2050.

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| 1. by | 2. closer | 3. closing |
| 4. covered | 5. equipped | 6. federal |
| 7. global | 8. maiden | 9. until |

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9.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 スターボードという言葉は、操舵するという意味のstéorと舷側^{げんそく}を意味するbordという古英語の言葉の組合せに由来している。中心線上に位置する舵が発明される前は、船はステアリングオールを使って操縦されていた。ほとんどの船員は右利きだったので、ステアリングオールは通常、船尾の右側に配置されていた。このため、右側はステアリングサイドと呼ばれるようになり、それがスターボードになった。

The word starboard (ア) from the (イ) of the two Old English words, 'stéor', meaning steer, and 'bord', meaning the side of a boat. Before the (ウ) of rudders on the centerline, boats were (エ) using a steering oar. Since most sailors were right-handed, the steering oar would usually be placed on the right side of the stern. This led to the right side being (オ) the steering side and it became starboard.

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| 1. called | 2. combination | 3. invasion |
| 4. invention | 5. maintained | 6. maneuvered |
| 7. originated | 8. reception | 9. translated |

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9.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。ただし、本文中の同じ記号は同じ語句を示しています。

（設問）

B-3 無線設備はその適正な使用に対し、機械的、電氣的、又はそれ以外の原因に起因する有害な干渉を受けない、かつ電磁的両立性が確保され、他の機器及び装置との有害な相互作用が回避されるような位置に設置されなければならない。

Every radio installation shall be (ア) in such a way that no (イ) interference of mechanical, electrical or other (ウ) affects its (エ) use, and that electromagnetic compatibility is (オ) and (イ) interaction avoided with other equipment and systems.

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| 1. ensured | 2. fearful | 3. harmful |
| 4. located | 5. opportunity | 6. origin |
| 7. preserved | 8. prompt | 9. proper |