

XRA 009
YRA 009
ZRA 009

第一級海上無線通信士
第二級海上無線通信士
第三級海上無線通信士

「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。

Employing an array of giant radio telescopes in the New Mexico desert, astronomers have started a massive survey. The aim is to produce the most detailed view ever made of a large span of the sky, detecting radio waves emitted from throughout the Milky Way and beyond. The National Radio Astronomy Observatory announced the project, saying the Very Large Array will make three scans of the sky that is visible from the scrubland of the San Augustin Plains. It is one of the best spots on the planet to scan space, with 80% of the Earth's sky visible from the location. The array works like a camera. But instead of collecting light waves to make images, the telescopes — which look like big satellite dishes — receive radio waves emitted by cosmic explosions and other phenomena.

Astronomers expect the images gathered by the array will allow them to detect in finer detail gamma ray bursts, supernovas and other cosmic events that visible-light telescopes cannot see due to dust present throughout the universe. For example, the array can peer through the thick clouds of dust and gas where stars are born. Scientists involved in the project say the results will provide valuable information for astrophysics researchers.

"In addition to what we think the survey will discover, we undoubtedly will be surprised by discoveries we aren't anticipating now," said project director Claire Chandler. The survey is possible because of a major technological upgrade at the Very Large Array, which was built in the 1970s. The antennae relied on their original electronics and processing systems until a recent overhaul made the system capable of producing images with much higher resolution. Astronomers using the array also expect to see more examples of powerful jets of superfast particles propelled by the energy of massive black holes at the center of galaxies. This could help in understanding how galaxies grow over time.

The National Radio Astronomy Observatory in 2013 invited astronomers from around the world to submit ideas and suggestions for the survey. Based on the recommendations, scientists and engineers designed the survey and ran a test in 2016. Approval for the full survey was early granted in 2017. The survey will involve about 5,500 hours of observing time. Data from the three separate scans will be combined to produce the radio images. The scanning began recently, and the raw data will be available to researchers as quickly as the observations are made.

<注> scrubland 低木地帯 supernova 超新星

(設問)

A-1 What is the main objective of the survey discussed in the article?

1. The purpose of the study is to help us understand outer space.
2. The study was designed to provide a detailed picture of the New Mexico desert.
3. The aim of the study is to transmit signals in order to contact life beyond the Milky Way.

A-2 How does the Very Large Array work?

1. Information is obtained from radio waves instead of light waves.
2. The Very Large Array works through the use of satellite images.
3. The Very Large Array operates a number of high-resolution cameras and telescopes.

A-3 What is a particular advantage of the kind of images obtained by the Very Large Array?

1. Many of the images will be obscured by clouds.
2. The Very Large Array can provide unique pictures of planets in space.
3. The images can reveal information that would normally be hidden by dust in space.

A-4 How was the new survey planned?

1. The new survey was entirely planned by Claire Chandler alone.
2. The survey was conducted by astronomers from around the world.
3. The survey was designed through consultation with experts from around the world.

A-5 How soon will researchers be able to access the data from the new survey?

1. Researchers should be able to access this information as it comes in.
2. It will take several years for researchers to be able to analyze any of the data.
3. After the first three scans have been made, it will take around 5,500 hours for the data to be processed.

2. 次の英文A-6からA-9までは、海上移動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 The ship earth station should normally be powered from the ship's main source of electrical energy. In addition, it should be possible to operate the ship earth station and all equipment necessary for its normal functioning, including the antenna tracking system, from an alternative source of energy.

(設問) What are the energy source requirements of a ship earth station?

1. Ship earth stations should always be operated using their alternative sources of energy.
2. The main source of electrical energy should always have more than sufficient capacity to prevent any need for redundancy.
3. In addition to the main source, an alternative source of energy must also be capable of powering a ship earth station for normal functioning.

A-7 In passenger ships, a distress panel shall be installed at the conning position to initiate a distress alert using all radiocommunication installations required on board. If the satellite EPIRB is used as the secondary means of distress alerting and is not remotely activated, it shall be acceptable to have an additional EPIRB installed in the wheelhouse near the conning position.

(設問) In the case of a passenger ship, which explanation is correct about installation options for a satellite EPIRB used as the secondary means of distress alerting?

1. A satellite EPIRB cannot be installed for secondary distress alerting if it can be remotely activated.
2. An additional satellite EPIRB without remote activation capability can be installed near the conning position.
3. A passenger ship must install at least two satellite EPIRB's for both primary and secondary means of distress alerting.

A-8 The function of a rescue coordination center (RCC) is to transmit a distress acknowledgement which indicates that it has accepted responsibility for the incident. The RCC will then relay the distress alert back to the area of the distress in order to raise contact with ships in the area which may be able to assist.

(設問) What must an RCC do after accepting responsibility for a distress incident according to the above description?

1. Once an RCC has accepted responsibility for an incident, it is obliged to contact every ship in the area.
2. The first requirement upon accepting responsibility is to transmit an acknowledgement of the distress call.
3. After accepting responsibility for a distress incident, an RCC is required to contact the relevant coast stations.

A-9 In order to meet the functional requirements of GMDSS, SOLAS Chapter IV, regulations 7 to 11 detail the equipment that ships are required to carry. In those regulations, only passenger ships are required to carry a means of two-way on-scene communication using the aeronautical frequencies, 121.5 MHz and 123.1 MHz as an additional requirement.

(設問) What are the special communication equipment requirements for passenger ships?

1. Passenger ships are always required to use aeronautical communication systems for distress alerts.
2. In addition to the normal requirements, passenger ships must carry two-way on-scene communication equipment capable of using the 121.5 MHz and 123.1 MHz frequencies.
3. Passenger ships are required only to carry a means of two-way on-scene communication using the aeronautical frequencies to fulfill all the functional requirements.

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 前回のラスベガス家電見本市で特に目立っていたのは、どのようにしてロボットが人間らしくなれるかを示すものであった。あるロボットは、人の顔の多様な表情を使って人間に対する思いやりを表し、他の物は人々の感情的な状態を読み取り反応するように教えられ人間らしくされていた。この技術は依然初期の段階ではあるが、ある分野では将来性を有していると、ロボット製作会社の最高技術責任者(CTO)は述べていた。

The last Consumer Electronics Show in Las Vegas (ア) how robots can become more like humans. Some robots showed (イ) to humans with a variety of facial (ウ), while others were being humanized by teaching them to read and react to people's (エ) states. The CTO of a robotics company said this technology is still in the early stages but (オ) promise in some areas.

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|----------------|----------------|----------------|------------|
| 1. compassion | 2. emotional | 3. expressions | 4. gets |
| 5. highlighted | 6. holds | 7. makeup | 8. passion |
| 9. rational | 10. stimulated | | |

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 1971年から2014年にわたってツバル諸島の地理的変化を調べた結果、研究者たちは、嵐による沈殿物堆積などの海面上昇による浸食の効果を弱める要因によって、その国土が実際には大きくなっていたことを発見した。気象変動は依然として主たる脅威の一つではあるが、まだ時間が実際にあるので、その島民たちは長期的な将来計画に着手すべきであると研究者たちは言っている。

After examining (ア) changes to the Tuvalu islands between 1971 and 2014, researchers found the country was actually growing (イ) factors such as sediment dumped by storms which (ウ) the erosion caused by rising water levels. Although climate change remains one of the major (エ), the researchers say the islanders should start planning for their long-term future as they (オ) have time.

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|---------------|-------------|---------------|-----------------|
| 1. do still | 2. due to | 3. economical | 4. geographical |
| 5. horrors | 6. offset | 7. promote | 8. should never |
| 9. subject to | 10. threats | | |

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 予報、警報、概況及びその他の船舶のための気象データは、締約政府間の相互承認に基づいて、種々の沿海及び公海区域の担当に最も適した国家気象機関によって発行され、伝えられなければならない。

Forecasts, (ア), and synoptic and other meteorological data (イ) ships shall be (ウ) and disseminated by the national meteorological service in the best position to serve various coastal and (エ) seas areas, in accordance with (オ) arrangements made by Contracting Governments.

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|--------------|--------------|--------------------|-----------------|
| 1. edited | 2. high | 3. instructions | 4. intended for |
| 5. issued | 6. mutual | 7. originated from | 8. public |
| 9. unanimous | 10. warnings | | |