

航空無線通信士「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。

Mars is about to get its first U.S. visitor in years: a three-legged, one-armed geologist to dig deep and listen for quakes. InSight will be the first American spacecraft to land since the Curiosity rover in 2012 and the first dedicated to exploring underground. NASA is going with a tried-and-true method to get this mechanical miner to the surface of the red planet. Engine firings will slow its final descent and the spacecraft will plop down on its rigid legs, mimicking the landings of earlier successful missions. Once flight controllers in California determine the coast is clear at the landing site — fairly flat and rock free — InSight's 1.8-meter arm will remove the two main science experiments from the lander's deck and place them directly on the Martian surface. No spacecraft has attempted anything like that before. The firsts don't stop there. One experiment will attempt to penetrate 5 meters into Mars, using a self-hammering nail with heat sensors to gauge the planet's internal temperature. That would shatter the out-of-this-world depth record of 2.5 meters drilled by the Apollo moonwalkers nearly a half-century ago for lunar heat measurements. InSight carries the first seismometers to monitor for marsquakes — if they exist. Yet another experiment will calculate Mars' wobble, providing clues about the planet's core. It won't be looking for signs of life, past or present. No life detectors are on board.

This time there won't be a ball bouncing down with the spacecraft tucked inside, like there was for the Spirit and Opportunity rovers in 2004. And there won't be a sky crane to lower the lander like there was for the six-wheeled Curiosity. No matter how it's done, landing there is hard and the current success rate is a mere 40 percent. While it's had its share of flops, the U.S. has by far the best track record. No one else has managed to land and operate a spacecraft on Mars. Two years ago, a European lander came in so fast that it carved out a crater on impact. The tensest time for flight controllers in Pasadena, California: the six minutes from the time the spacecraft hits Mars' atmosphere to touchdown. InSight will enter Mars' atmosphere at a supersonic 19,800 km/h, relying on its white nylon parachute and a series of engine firings to slow down enough for a soft upright landing on Mars' Elysium Planitia, a sizable equatorial plain. InSight project manager, Tom Hoffman, hopes it's like a huge supermarket parking lot in Kansas. The flatter the better so the lander doesn't tip over.

<注> plop down ドサッと腰を下ろす mimic 真似る experiment 実験用器具 seismometer 地震計
wobble 揺れ flop 失敗

(設問)

A-1 What does the article say about how the spacecraft will land on Mars?

1. NASA will use a familiar technique that has been successful in the past.
2. InSight will attempt a new kind of landing that has never been tried before.
3. This time the landing will be very different to those of earlier successful missions.

A-2 Which of the following is one of the unique aims of the mission?

1. The vessel will investigate unexplored coastal areas of Mars.
2. The mission plans to dig deeper than any other space mission.
3. This will be the first mission that attempts to find life on Mars.

A-3 How successful have previous attempts to land on Mars been?

1. No U.S. mission to land on Mars has ever failed.
2. Attempts to land on Mars fail more often than they succeed.
3. The most successful landing occurred two years ago when a European lander made a new crater.

A-4 What is the most difficult and stressful time for the flight controllers in California?

1. The first few seconds after the vessel is launched.
2. The six minutes following the landing on the surface of Mars.
3. The minutes between entering the atmosphere of Mars and landing on its surface.

A-5 What is a key requirement for the landing site on Mars?

1. The surface of the planet needs to be very soft at the landing site.
2. The site must be close to the equator of Mars as this is the easiest place to land.
3. It is important that site is as flat as possible to prevent the lander from falling to one side.

2. 次の英文A-6からA-9までは、航空通信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 earth stations are authorized to use frequencies in the bands allocated to the maritime mobile-satellite service for the purpose of communicating, via the stations of that service, with the public telegraph and telephone networks.

(設問) Under what circumstances does the above regulation say aircraft earth stations are allowed to use frequencies in the bands allocated to the maritime mobile-satellite service?

1. Mobile-satellite service frequencies may only be used for distress purposes.
2. These frequencies may be used when communicating with public networks through the stations of the maritime mobile-satellite service.
3. Aircraft earth stations have authority to use these frequencies only for the purpose of communicating with stations of the maritime mobile-satellite service.

A-7 The use of the frequency bands 161.9625-161.9875 MHz and 162.0125-162.0375 MHz by the aeronautical mobile (OR) service is limited to the automatic identification system (AIS) emissions from search and rescue aircraft operations. The AIS operations in these frequency bands shall not constrain the development and use of the fixed and mobile services operating in the adjacent frequency bands.

(設問) What restrictions are in place concerning AIS operations on the frequencies 161.9625-161.9875 MHz and 162.0125-162.0375 MHz?

1. The AIS emissions are not permitted by the aeronautical mobile (OR) service.
2. These frequencies should not be used for AIS operations during a search and rescue mission.
3. The AIS operations using those frequency bands must not constrain nearby frequency bands used in the fixed and mobile services.

A-8 It is recognized that Supplementary Procedures may be required in certain cases in order to meet particular requirements of ICAO Regions. Any Supplementary Procedure recommended for this purpose must be a requirement peculiar to the region and must not be contained in, nor conflict with, any worldwide Procedure of ICAO.

(設問) What do the regulations say about the use of particular local procedures?

1. Local regional procedures always take priority over international ones.
2. Procedures peculiar to a particular region are permitted as long as there is no conflict with any worldwide procedure.
3. No regional variations on the internationally established procedures of the ICAO are permitted under any circumstance.

A-9 Each State shall designate the authority responsible for ensuring that the international aeronautical telecommunication service is conducted in accordance with the relevant Procedures. The authorities designated should exchange information regarding the performance of systems of communication, radio navigation, operation and maintenance, unusual transmission phenomena, etc.

(設問) How does each State ensure the relevant Procedures for the international aeronautical telecommunication service are properly observed?

1. It appoints the authority to handle the task.
2. The authority with the best communication systems is made responsible for the communication service.
3. The Procedures are defined by the authorities responsible for radio navigation, operation and maintenance.

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** 北海道の新聞社は、大災害時に公衆へニュースを伝えるためにドローンの信頼性を試験した。その会社の配達員達で構成されるグループは大地震が橋に損害を与え道路を分断するという想定の下で、旭川市内の川を越えて200メートル先のところへ10部の新聞を運ぶドローンの飛行に成功した。

A Hokkaido newspaper company has tested the (ア) of drones for newspaper delivery to the public in times of (イ). A group of the company's delivery staff has successfully (ウ) a drone carrying 10 copies of its newspaper 200 meters across a river in the city of Asahikawa (エ) a hypothetical scenario in which a major quake damages a bridge and (オ) roads.

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| 1. disaster | 2. durability | 3. flown |
| 4. jumped | 5. reliability | 6. severs |
| 7. slices | 8. under | 9. writing |

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** 日本は2021年度に月面探査用上陸機を打ち上げることを計画している。その目的は、太陽電池が十分な太陽光を得られる場所に上陸機が着地できるようにするための正確な着陸技術の確立である。科学者たちは許容誤差として数百メートル以内の正確さで上陸機が与えられた場所に着陸できる技術の確立を目指している。

Japan is planning to (ア) a lunar exploration lander in fiscal 2021. The aim is to establish accurate landing technology for a lander to (イ) at a location (ウ) sufficient sunlight for solar cells. Scientists are aiming to establish technology that will (エ) the lander to land at a given location within a (オ) of error of several hundred meters.

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| 1. able | 2. affordable | 3. causing |
| 4. dive | 5. enable | 6. launch |
| 7. margin | 8. touch down | 9. with |

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、()内の同じ記号は、同じ解答を示します。

（設問）

- B-3** 航空移動業務は航空地上局と航空機局、又は航空機局相互間の移動業務として定義され、生存艇局(救命浮機局)もその業務に参加することができる、また、非常用位置指示無線標識局も、指定された遭難周波数及び非常用周波数を用いて参加することができる。

Aeronautical mobile service is (ア) as a mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may (イ); emergency position-(ウ) radiobeacon stations may also (エ) in this service (エ) designated distress and emergency (オ).

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|---------------|----------------|---------------|
| 1. above | 2. accompany | 3. defined |
| 4. displaying | 5. frequencies | 6. indicating |
| 7. on | 8. participate | 9. power |