

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塗りつぶしなさい。

NASA scientists are using former military surveillance drones to help them understand more about how tropical storms intensify. This could ultimately save lives by improving forecast models that predict a hurricane's strength. The unmanned Global Hawk aircraft were designed to perform high-altitude intelligence missions for the air force.

“The biggest scientific question we're trying to attack is why do some hurricanes intensify very rapidly and why do others not intensify at all? In the last 20 years, we've made terrific progress in forecasting where hurricane tracks will go,” said Paul Newman, deputy project scientist for the research mission. “But we've made almost no progress in the past 20 years in forecasting intensity.”

More accurately predicting a storm's intensity will help government officials and coastal residents decide whether an evacuation is needed. It may also avoid developing a false sense of security among residents who frequently cite past failures of storm predictions as a reason not to leave their homes when warned to do so.

There are two questions on which NASA scientists primarily want the research to focus. One is what role thunderstorms within a hurricane play in its intensification. Researchers are not sure if the thunderstorms are a driver of storm intensity or a symptom of it. The other is what role the Saharan Air Layer plays in tropical storm development. Scientists have been at odds with each other over this question. One school of thought is that the Saharan Air Layer provides energy for storms to grow, while others have suggested it is a negative influence on storm growth because of the effect the dry air has on wet storms.

This is the second year NASA has launched Global Hawks from a strategic location that allows the drones to spend plenty of time studying storms shortly after they have formed off the coast of Africa or as they approach the Caribbean Sea or Gulf of Mexico. The drones are considered advantageous over manned aircraft because they can fly for much longer periods of time than traditional research aircraft and at much greater altitudes. Global Hawks can spend up to 28 hours in the air at a time and reach altitudes up to 20 km - twice that of a typical commercial airliner.

<注> surveillance drone 無人偵察機 intensify 勢力を強める cite 例として挙げる symptom 兆候
the Saharan Air Layer サハラ砂漠の空気の層 school 学派 strategic 戦略的な

(設問)

- A-1** What was the original purpose of the drones now being used for research?
1. The aircraft were originally built as air force fighter planes.
 2. The planes were used to gather military information from great heights.
 3. The original purposes of the Global Hawk were lifesaving and rescue operations.
- A-2** According to Paul Newman, what is the main scientific purpose of the research?
1. The main goal is to find out more about hurricane tracks.
 2. The biggest scientific question they are trying to tackle is the original cause of hurricanes.
 3. The principal aim is to learn more about why some hurricanes become very powerful but others do not.
- A-3** How will more accurate hurricane forecasts help coastal residents?
1. Coastal residents are hoping to build a false sense of security.
 2. Better predictions will help coastal residents to trust government warnings.
 3. More accurate predictions mean that residents will not have to leave their homes when warned to do so.
- A-4** What do scientists believe about the role of the Saharan Air Layer on the storms?
1. Most scientists agree the dry air has a negative effect on wet storms.
 2. There is general agreement that the Saharan Air Layer provides energy for storms to grow.
 3. There is disagreement among scientists about the effects of the Saharan Air Layer.
- A-5** What are the main benefits of using drones for this research?
1. Drones can fly higher and longer than other aircraft.
 2. Drones fly at much greater speeds than other aircraft and can cover greater distances.
 3. Typical commercial airliners have an advantage over drones in this research.

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塗りつぶしなさい。

A-6 When "operations normal" reports are transmitted by aircraft, they should consist of the prescribed call followed by the words "OPERATIONS NORMAL".

(設問) What is the appropriate order for "operations normal" reports transmitted by aircraft?

1. An aircraft should make the prescribed call without the words "OPERATIONS NORMAL".
2. In an "operations normal" report, the prescribed call must immediately follow the words "OPERATIONS NORMAL".
3. An "operations normal" report should contain the words "OPERATIONS NORMAL", which must come after the prescribed call.

A-7 Aircraft may communicate, for distress and safety purposes, with stations of the maritime mobile service. Aircraft, when conducting search and rescue operations, are also permitted to operate digital selective-calling (DSC) equipment on the VHF DSC frequency 156.525 MHz (channel 70), and automatic identification system (AIS) equipment on the AIS frequencies 161.975 MHz and 162.025 MHz.

(設問) In what cases are aircraft permitted to use the AIS frequencies 161.975 MHz and 162.025 MHz?

1. Aircraft may use these frequencies for digital selective-calling.
2. Aircraft are allowed to use these frequencies when involved in search and rescue operations.
3. Aircraft are only permitted to use these frequencies when DSC equipment is not available.

A-8 An aircraft station should be advised by the appropriate aeronautical station to transfer from one radio frequency or network to another. In the absence of such advice, the aircraft station should notify the appropriate aeronautical station before such transfer takes place.

(設問) What should an aircraft station transferring frequencies or networks do in cases where there is no advice from the appropriate aeronautical station?

1. The aircraft station should inform the appropriate aeronautical station prior to making such a transfer.
2. The aircraft station should notify the appropriate aeronautical station as soon as the transfer has taken place.
3. The aircraft station should tell the appropriate aeronautical station that it needs advice.

A-9 Transmissions shall be conducted concisely in a normal conversational tone. Each written message should be read prior to commencement of transmission in order to eliminate unnecessary delays in communications.

(設問) At what point and why is it recommended to read written messages?

1. Reading messages after transmission will eliminate unnecessary delays.
2. Reading messages before transmission should make communication smoother and more efficient.
3. Reading messages as soon as possible should enable the transmitter to avoid a normal conversational tone.

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塗りつぶしなさい。

（設問）

B-1 海外旅行に慣れていない私のような者にとって、海外事情に詳しいガイドがついているパック旅行では、困ることはなかった。少なくとも、空港を通るときに、まごつくことはなかった。

For someone (ア) me who was not (イ) to traveling abroad, it was very helpful to go on a package tour with a guide who (ウ) the foreign countries well. At (エ), there wasn't any trouble getting (オ) the airports.

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|-------------|------------|-----------|
| 1. along | 2. as | 3. knew |
| 4. least | 5. like | 6. likely |
| 7. smallest | 8. through | 9. used |

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塗りつぶしなさい。

（設問）

B-2 パイロットだけでなく、多くの人々がさまざまなシステムを使って航空機を空港に安全に誘導着陸させる仕事に関わっている。しかしながら、パイロットは、安全に着陸させるために細心の注意と全神経を集中して行うことが求められている。

Besides the pilot, many people using (ア) systems are (イ) in helping the aircraft land safely at the airport. The pilot is, however, expected (ウ) work with particular (エ) and attention to ensure a safe (オ).

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| 1. care | 2. changeable | 3. for |
| 4. interested | 5. involved | 6. landing |
| 7. take-off | 8. to | 9. various |

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塗りつぶしなさい。

（設問）

B-3 遭難している航空機から宛てられた局、又は遭難通報を最初に受信した局は、直ちに遭難通報に受信証を与え、遭難通信の周波数へ通信の移行がなされないように、適宜、他の局に警告をしなければならない。

The station (ア) by aircraft (イ) distress, or first station acknowledging the distress message, shall (ウ) acknowledge the distress message and (エ) other stations, as appropriate, in (オ) to prevent the transfer of traffic to the frequency of the distress communication.

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|--------------|--------------|----------------|
| 1. addressed | 2. correctly | 3. immediately |
| 4. in | 5. order | 6. propose |
| 7. response | 8. warn | 9. with |