

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。

True north isn't quite where it used to be. Earth's north magnetic pole has been drifting so fast in the last few decades that the monitoring team working on the latest update of World Magnetic Model (WMM) says that past estimates are no longer accurate enough for precise navigation. On Monday, they released an update of where true north really was, nearly a year ahead of schedule. The magnetic north pole is wandering about 55 km a year. It crossed the international date line in 2017, and is leaving the Canadian Arctic on its way to Siberia.

The constant shift is a problem for compasses in smartphones and some consumer electronics. Airplanes and boats also rely on magnetic north, usually as backup navigation, said University of Colorado geophysicist Arnaud Chulliat, lead author of the newly issued WMM. GPS isn't affected because it's satellite-based.

The military depends on where magnetic north is for navigation and parachute drops, while NASA, the Federal Aviation Administration and US Forest Service also use it. Airport runway names are based on their direction toward magnetic north and their names change when the poles move. For example, the airport in Fairbanks, Alaska, renamed a runway 1L-19R to 2L-20R in 2009. The US and United Kingdom tend to update the location of the magnetic north pole every five years in December, but this update came early because of the pole's faster movement.

The movement of the magnetic north pole "is pretty fast," Chulliat said. Since 1831, when it was first measured in the Canadian Arctic, it has moved about 2,300 km toward Siberia. Its speed has jumped from about 15 km per year to 55 km per year since 2000. The reason is turbulence in Earth's liquid outer core. There is a hot liquid ocean of iron and nickel in the planet's core where the motion generates an electric field, says University of Maryland geophysicist Daniel Lathrop, who wasn't part of the team monitoring the magnetic north pole.

<注> geophysicist 地球物理学者 parachute 落下傘 aviation 航空 turbulence 乱流

(設問)

A-1 Who belongs to the team monitoring the magnetic north pole?

1. Both Arnaud Chulliat and Daniel Lathrop belong to the team.
2. Arnaud Chulliat belongs to the team but Daniel Lathrop doesn't.
3. Daniel Lathrop belongs to the team but Arnaud Chulliat doesn't.

A-2 According to the article, which of the following will not be affected by the magnetic north pole's drift?

1. Equipment which uses GPS
2. Smartphones and some consumer electronics which use magnetic compasses
3. Airplanes and boats which use magnetic compasses as backup navigation equipment

A-3 Why was the runway of the Fairbanks airport renamed?

1. The runway was for airplanes flying from northern Canada to Siberia.
2. The runway was sometimes used for military planes with parachute troops.
3. The runway's name refers to its bearing to magnetic north, and that had moved significantly.

A-4 How many kilometers has the magnetic north pole moved since 1831?

1. It has moved 70 kilometers since 1831 and is increasing speed.
2. It has moved 55 kilometers since 1831 and is going to move 15 kilometers per year.
3. It has moved 2,300 kilometers since the first measurement of the magnetic north pole in 1831.

A-5 According to Daniel Lathrop, what is the reason for the rapid movement of the magnetic north pole?

1. He says it is due to the turbulence in Earth's liquid outer core.
2. He blames the electric fields which are being generated near the iron and nickel mines.
3. He says the turbulence in the spinning of the earth causes the movement of the magnetic north pole.

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 When any ship station transmitter itself cannot be controlled in such a way that its frequency satisfies the tolerance specified in the Radio Regulations, the ship station shall be provided with a device, having a precision equal to at least one-half of this tolerance, for measuring the frequency of the emission.

<注> tolerance 許容偏差 specify 規定する

(設問) Must every ship station be provided with the device for measuring the frequency of its transmitter emission?

1. Yes, every ship station must be provided with this device without any exception.
2. No, it's not necessary because every ship station must have a transmitter with enough frequency stability.
3. No, not every one. It depends on whether its transmitter frequency can be controlled within the specified range.

A-7 The urgency call format of DSC and the urgency signal for urgency calls using radiotelephony indicate that the calling station has a very urgent message to transmit concerning the safety of a mobile unit or a person.

(設問) What do the urgency call format and the urgency signal show?

1. They show that the station called has a message to transmit very urgently related to the safety of a mobile unit or a person.
2. They show that the calling station has a message which should be sent very urgently concerning the safety of a mobile unit or a person.
3. They do not indicate that the calling station has a very urgent message to send concerning the safety of a mobile unit or a person.

A-8 Every radio installation on board a ship shall be so located that no harmful interference of mechanical, electrical or other origin affects its proper use, and so as to ensure electromagnetic compatibility and avoidance of harmful interaction with other equipment and systems.

(設問) Where shall each radio installation in a ship be located?

1. A location that is free from harmful interference from other equipment or systems of the ship.
2. A location that is free from harmful interference from other equipment or systems of other ships.
3. A location that produces no harmful interference to other equipment or the systems of other ships.

A-9 When transmitted by an aircraft station, the acknowledgement of receipt of a message shall comprise the call sign of that aircraft.

(設問) What must an aircraft station include in a transmission acknowledging receipt of a message?

1. The acknowledgement must include the call sign of the aircraft station acknowledging receipt of the message.
2. The call sign of the station that transmitted the original message must not be included in the acknowledgement.
3. The call signs of both the aircraft station and the aeronautical station must always be included in the acknowledgement.

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 オーストラリアは、その美しい海岸や打ち寄せる波で有名である。しかし、その海は単なるサーファーの楽園以上のものを与えてくれており、その潮流はまた再生可能エネルギー源でもあるのだ。あるシドニーに拠点を置く企業が2メートルから4メートルの範囲の直径を持つ水中タービンを作っている。絶えず流れる水中で動くタービン1基で20世帯までをまかなうのに十分な電力を生み出すことができる。

Australia is (ア) its beautiful beaches and surf. But the ocean offers (イ) just a surfer's paradise: its tides are also a source of (ウ) energy. A Sydney-based company makes underwater turbines (エ) between two and four meters in diameter. One turbine operating in constantly flowing water can produce enough electricity to power (オ) 20 homes.

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| 1. arranging | 2. famous for | 3. frequent |
| 4. more than | 5. much more | 6. notorious as |
| 7. ranging | 8. renewable | 9. up to |

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 岩礁に生息するサメの数が驚くほど減少していることが世界的規模の調査で明らかになり、調査された地点の20パーセント近くでは、その捕食動物が「機能的に絶滅」していた。その4年に及ぶ調査では、15,000台以上の餌を付けた遠隔操作の水中ビデオカメラが使われ、岩礁のサメがどこで数が多く、どこで事実上姿を消しているか分かった。

A global (ア) has revealed a shocking (イ) in the number of reef sharks, with the predators 'functionally extinct' in nearly 20 percent of studied places. The four-year study used more than 15,000 baited (ウ) underwater video cameras to see where reef sharks are (エ) and where they are (オ) non-existent.

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| 1. decline | 2. distant | 3. explore |
| 4. lost | 5. moreover | 6. numerous |
| 7. remote | 8. survey | 9. virtually |

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 海上移動業務においては、周波数490 kHzは、海岸局が狭帯域直接印刷電信により、船舶に対して気象警報、航行警報その他緊急な情報の伝達を行うためにのみ使用される。

In the maritime mobile service, the frequency 490 kHz is used (ア) for the transmission by coast stations of (イ) and navigational (ウ) and urgent information to ships by (エ) narrow-band direct-printing (オ).

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|---------------|-------------------|----------------|
| 1. attentions | 2. exclusively | 3. inclusively |
| 4. means of | 5. meteorological | 6. no means |
| 7. telegraphy | 8. telephony | 9. warnings |