英　　語

注　意

1. 問題は全部で12ページである。
2. 解答用紙に氏名・受験番号を忘れずに記入すること。(ただし，マーク・シートにはあらかじめ受験番号がプリントされている。)
3. 解答はすべて解答用紙に記入すること。
4. 問題冊子の余白等は適宜利用してよいが，どのページも切り離してはいけない。
5. 解答用紙は必ず提出のこと。この問題冊子は提出する必要はない。

マーク・シート記入上の注意

1. 解答用紙(その1)はマーク・シートになっている。HBの黒鉛筆またはシャープペンシルを用いて記入すること。
2. 解答用紙にあらかじめプリントされた受験番号を確認すること。
3. 解答する記号・番号の ○ を塗りつぶしなさい。○で囲んだり×をつけたりしてはいけない。

解答記入例(解答が 1 のとき)

1	●	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

4. 一度記入したマークを消す場合は，消しゴムでよく消すこと。×をつけても消したことにならない。
5. 解答用紙をよごしたり，折り曲げたりしないこと。

1 次の文を読み，以下の問いに答えなさい。

Even before the cartoon character George Jetson entranced kids with his flying car, people dreamed of soaring above traffic congestion. Inventors and entrepreneurs have long tried and failed to make the dream a reality. But that may be changing.

Nearly a dozen companies around the world are competing. They want to be the first to develop a new kind of aircraft. One company is Airbus. It is based in Europe. The so-called flying car will enable commuters to glide[11] above crowded roadways. A few of the aircraft under development are cars with wings. They unfold for flight. But most aren't cars at all. Typically they take off and land vertically. This would be more like helicopters. Rather than a single, large main rotor, they have multiple small rotors. Each rotor is operated by a battery-powered electric motor. This is instead of a conventional aircraft piston engine.

It's no sure bet that flying-car dreams will turn into reality. There are many obstacles. These include convincing regulators that the aircraft are safe. Designers must figure out how to handle thousands of new low-flying aircraft over cities[A]. They would need to avoid collisions. And, batteries must be developed. They[12] would keep the flying cars aloft long enough to be useful.

But entrepreneurs are moving forward. They see a vast potential market for "air taxis." And perhaps, personally owned small aircraft. These would transport people from the fringes of metropolitan areas to city centers. It could occur as urban areas grow more congested. And people are forced to spend more time stuck in traffic. The designers envision tens of thousands of one or two-person flying taxis. The taxis might deliver passengers to the rooftops of office buildings in city centers and other landing pads. The aircraft would be especially useful during rush hours.

"In as little as 10 years, products could be on the market that revolutionize

urban travel for millions of people," said Zach Lovering. He is the leader of Airbus' project to develop an autonomous flying taxi. It is called the Vahana. The name means the mount or vehicle of a Hindu deity.

Uber released a 98-page report in October. It made the business case for air taxis. The company sees them as the future of on-demand transportation. Uber doesn't have any plans to develop a flying car itself. But the online transportation network is advising several companies that have aircraft in the works. (13)

"The role we want to play is as a catalyst for the entire industry," said Nikhil Goel. He is an Uber project manager for advanced programs.

Some of the aircraft are drones. Each would be preprogrammed for every flight. They will be monitored or operated from the ground or a command center. Others are designed for human pilots.

It's unclear yet how much the aircraft will cost. The prices are likely to vary significantly. Some of the aircraft are designed to be individually owned. Others are envisioned (14) more for commercial use. Designers hope that demand is high. If so, prices might be kept affordable through mass production.

Several recent developments could make these aircraft possible. Advances in computing power mean the rotors on multi-copter drones can be adjusted many times per second. This makes the aircraft easy to control. Drones have also benefited from advances in battery and electric motor technology. Some companies, like Chinese dronemaker EHang, are scaling-up drones. That's so they can carry people.

Another aircraft under development is at Joby Aviation. The company is based in Santa Cruz, California. Its aircraft is called the S2. It looks more like a conventional plane. But there are 12 tiltrotors. These are spread along the wings and tail. And some, like the Vahana, have a cockpit mounted on a sled, with propellers in front and back. They don't really look like any aircraft in the skies today.

New computer chips "have literally opened the door to a whole new world of flying machine possibilities," said Charles Eastlake. He is an Embry-Riddle Aeronautical University professor emeritus of aerospace engineering.

But he also offered a caution. "My best engineering guess is that people actually using autonomous air taxis in the next 10 or 15 years is possible. But it is definitely not certain. The challenges are big."

Key for many of the designs will be the development of longer-lasting lightweight batteries. Current batteries could probably keep an air taxi aloft about 15 to 30 minutes. Then it would have to land, experts said. Depending on how fast the aircraft flies, that probably isn't quite enough to transport passengers between nearby cities or across metropolitan areas, experts said.

Another hurdle will be winning Federal Aviation Administration certification for any radical new kind of aircraft. Approval of even small changes in aviation technology can take years.

The FAA said in a statement that it is taking a "flexible, open-minded, and risk-based approach" to flying cars. FAA officials have discussed with several manufacturers the certification of aircraft. These will be flown with a pilot in the beginning. Later, they will be converted to an autonomous passenger aircraft.

Reducing noise is another challenge. Air taxis will be taking off and landing in densely populated areas. So is creating enough landing pads to handle lots of aircraft at the same time. A new air traffic control system would also likely be needed.

"It's pretty clear that the existing air traffic control system won't scale to the kind of density at low altitudes that people are talking about," said John Hansman. He is a Massachusetts Institute of Technology professor. He chairs the FAA's research and engineering advisory committee.

NASA is developing an air traffic control system for small drones. It could perhaps be expanded to include flying cars.

"There's no question we can build the vehicle," Hansman said. "The big challenge is whether we can build a vehicle that would be allowed to operate in the places where people want to use it."
B

Notes:

entrance(d) …を夢中にさせる, entrepreneur(s) 起業家,
rotor(s) 水平回転翼, 回転子, autonomous 自律性の,
deity 神, catalyst 促進する働きをするもの,
multi-copter 3つ以上のローターを搭載した回転翼機,
tiltrotor(s) 転換式航空機, sled そり,
NASA = National Aeronautics and Space Administration 米国航空宇宙局

〔1〕 下線部A, Bを日本語にしなさい。(**解答用紙その2**)

〔2〕 1～15の質問に対して英文の内容から判断し, 最も適切なものを一つ選び, その番号をマークしなさい。(**解答用紙その1**)

1. What is the best title for this passage?
   (1) Flying cars are only a dream
   (2) George Jetson and the first flying car
   (3) People dream of flying cars but they are unrealistic
   (4) How close are we to flying cars?

2. Which statement is true regarding flying cars?

(1) Airbus doesn't want to be the first to develop flying cars.

(2) Not many of the aircraft currently being developed are cars with wings.

(3) Flying cars wouldn't enable commuters to avoid crowded roads.

(4) The so-called flying car would still be powered by a conventional piston engine.

3. One obstacle to realize flying cars is

(1) the need for roads where they could be driven.

(2) where to assemble them.

(3) their safety.

(4) the need to use crowded roadways.

4. One expected use of air taxis would be to

(1) transport people to downtown areas from distant metropolitan areas.

(2) discourage entrepreneurs from moving forward.

(3) increase the congestion of urban areas.

(4) None of the above.

5. One Airbus representative says these flying cars

(1) could cause more people to be stuck in traffic.

(2) should be avoided at rush hour just to be safe.

(3) could change urban travel for many people.

(4) are similar to what the Hindu gods predicted in ancient times.

6. Which statement is true regarding Uber?

(1) Uber does not believe there is a future for flying cars.

(2) Uber has no plans to develop its own flying cars.

(3) Uber's 98-page report does not support the development of on-demand transportation.

(4) Uber is not looking into ways of developing an on-demand transportation network.

7. What type of flying cars can be expected?

(1) Some designed for human pilots.

(2) Some designed for the ground or command center.

(3) Some designed for a Hindu deity.

(4) All of the above.

8. What could make the development of flying cars possible?

(1) Increased drone size.

(2) Advancements in computing power.

(3) Improved battery and electric motor technology.

(4) All of the above.

9. Professor Eastlake believes that

(1) flying cars may be taking to the skies in the next 10 to 15 years.

(2) there is no future for flying cars as there are too many obstacles.

(3) there is strong certainty about the future of flying cars.

(4) the air traffic control system is adequate today to allow for flying cars.

10. What is NOT a challenge that must be overcome to make flying cars possible?

(1) The reduction of operating noise.

(2) The construction of landing facilities.

(3) The lack of companies that wish to build flying cars.

(4) All of the above.

11. What does the word "glide" mean?

(1) To depart slowly.

(2) To move smoothly.

(3) To crawl continuously.

(4) To march quickly.

12. What does the word "they" refer to?

(1) Regulators.

(2) Aircraft.

(3) Designers.

(4) Batteries.

13. What does the term "in the works" mean?

(1) Being taken apart.

(2) Under development.

(3) Permanently postponed.

(4) Considered out-of-date.

14. What does the word "envisioned" mean?

(1) Imagined.

(2) Disregarded.

(3) Engaged.

(4) Renewed.

15. What does the word "literally" mean?

(1) Doubtfully.

(2) Probably.

(3) Loosely.

(4) Actually.

2 以下のそれぞれの定義に従って，最初と最後の文字が与えられた最も適切な単語を書きなさい。ただし，１下線に１文字が入る。（**解答用紙その２**）

（解答例）

someone who is trained in science, especially someone whose job is to do scientific research

⇒(s_____t)　　正解(s c i e n t i s t)

1. an object (such as a box or can) that can hold something

⇒(c_____r)

2. a written or spoken request for someone to go somewhere or to do something

⇒(i_____n)

3. the amount of sound that is produced by a television, radio, stereo, etc.

⇒(v____e)

4. a person who receives medical care or treatment

⇒(p_____t)

5. a large amount of money and possessions

⇒(w____h)

3 次の会話文を読んで，以下の問いに答えなさい。

Paul: Jin, why the no-show last night?

Jin: Sorry, what are you asking?

Paul: (16), you didn't go to the party last night.

Jin: I am not sure what party you're talking about.

Paul: Marty's birthday party. Last night. You mean you forgot?

Jin: A party? How was I (17) know about it? I heard nothing about a party.

Paul: What? I sent you a text message about it three days ago. And you replied.

Jin: Really? (18) was that?

Paul: Right after you got the message. Want to see your message?

Jin: No. But (19), I'm very sorry. I feel bad for not going to the party, and for breaking my word to you.

Paul: That's OK, but when you see Marty, (20) wish him a belated happy birthday.

Jin: Trust me. I won't forget.

〔1〕 下の選択肢1～0の中から，上の空欄16～20に最も適切なものを一つ選び，その番号をマークしなさい。ただし，同じ語句を複数回選択してはならない。また，文頭に来る選択肢も全て小文字で表している。(**解答用紙その1**)

1. where	6. when
2. I mean	7. if that's true
3. bless	8. not sure
4. supposed to	9. be sure to
5. what	0. count on me

〔2〕 次の文で，会話文の内容と一致するものは1を，一致しないものは2をマークしなさい。(**解答用紙その1**)

21. Paul contacted Jin about a birthday party several days ago.
22. Paul missed the party because he forgot all about it.
23. The party was held three days ago.
24. Jin responded immediately after learning about the party.
25. Paul called Jin to tell him about the party.

4 次の日本語の文を表す英文を，与えられた語句を用いて完成させた場合，2番目と4番目になる語句を番号で答えなさい。ただし，文頭に来る選択肢も全て小文字で表している。(**解答用紙その1**)

26. スープのおかわりは無料ですか。

Is [ ] [ ] [ ] [ ] [ ] [ ] ?
(2番目, 4番目)

① helping ② a ③ soup
④ of ⑤ free ⑥ second

1) ③—⑤ 2) ⑥—① 3) ⑥—④ 4) ③—①

27. 同僚が挨拶しなかった時に，彼は悲しみました。

He [ ] [ ] [ ] [ ] [ ] [ ] .
(2番目, 4番目)

① failed ② when ③ greet him
④ his coworker ⑤ felt sad ⑥ to

1) ②—① 2) ②—③ 3) ⑥—② 4) ⑤—④

28. 私は，昨日歯医者さんで歯を抜いてもらいました。

I [ ] [ ] [ ] [ ] [ ] [ ] the dentist.
(2番目, 4番目)

① tooth ② a ③ had
④ pulled ⑤ at ⑥ out

1) ⑥—① 2) ④—② 3) ②—④ 4) ②—⑥

29. 天気がいいにも関わらず，試合は中止になりました。

[ ] [ ] [ ] [ ] [ ] [ ] .
(2番目, 4番目)

① the game ② the fine ③ despite
④ cancelled ⑤ was ⑥ weather

1) ⑤—⑥ 2) ③—① 3) ⑥—① 4) ⑤—③