注意：解答用紙は２枚あります。それぞれに学籍番号と氏名を記入してください。

問題１

次の文章は"Capturing CO2 is Costly and Difficult"と題した記事で、５つのパラグラフから構成されている。この英文に関する以下の問に、原文に則して日本語で答えなさい（直訳でなくてよいが、原文の内容を十分に踏まえて書くこと）。

Most scientists agree that increasing amounts of carbon-dioxide gas in Earth's atmosphere is partly to blame for rising temperatures, also known as climate change. Changes in the atmosphere can have a big effect on weather conditions around the world.

The most cost effective way to get power still comes from burning fossil fuels such as coal, oil and natural gas. They are less costly than other forms of energy. But burning fossil fuels releases carbon dioxide, known to scientists as CO2. Keeping excess CO2 from entering the atmosphere is a difficult and costly process. Scientists are looking for the best and least costly methods for capturing the gas and storing it away from the atmosphere.

Some of this research is taking place in western Norway. The Technology Center in Mongstad is the largest facility in the world for major testing of new CO2-capturing technologies. The center is called TCM. Tore Amundsen is its chairman. He says TCM has produced important knowledge since it opened in 2012. "We learned about selection of materials, we learned about design models, that has been improved considerably through these tests, and we learned a lot about operations of a facility which is a fairly large facility."

TCM is connected to a nearby electric power plant. Mr. Amundsen says the center treats exhaust fumes from the plant. It uses chemical solvents to capture CO2 from those gases. "The solvent attracts the CO2 molecules from the exhaust gas and then we take the chemical with the CO2 molecules and boil the CO2 so to speak, so that we can separate the CO2 from the solvent that we used and we use the solvent again to capture more CO2."

The goal is to capture 90 percent of the CO2 from the exhaust gases. But Mr. Amundsen says the process is still costly. Experts say the best way to store the captured gas is to place it underground into areas left empty after the removal of oil or natural gas. Tore Amundsen says only highly developed industrial nations have the money to pay for this kind of technology. So far, only Canada has a power plant that pumps CO2 gas underground. Other countries are building similar power plants.

excess – n., an amount that is more than the usual or necessary amount
exhaust – n., the gases produced by an engine
power plant – n., a building or factory in which electricity is produced for a large area
solvent – n., a liquid that is used to break up another substance

（Science in the News, Voice of America Learning English　2015 年 3 月 1 日の放送原稿より抜粋）

(1) 科学者たちは大気中の CO2 についてどのように考えているのか、答えなさい。

(2) 科学者たちはなぜ CO2 を回収する方法を研究しているのか、答えなさい。

(3) ノルウェーの the Technology Center はどのような施設であるのか、説明しなさい。

(4) ノルウェーの the Technology Center ではどのように CO2 を回収するのか、説明しなさい。

(5) CO2 を回収・貯蔵する技術の問題点は何であるのか、説明しなさい。

注意：解答用紙は２枚あります。それぞれに学籍番号と氏名を記入してください。

問題２

Answer the following questions in English using more than 50 but less than 100 words for each question.

(1) Describe your research activities.

(2) What kind of practical use is expected when your research is completed ?

(3) How is your research related with the important challenges in this century (global warming, food crisis, population explosion, energy depletion, digital divide, etc.) ? If you cannot answer the question, you may describe one of these challenges.