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

次の文章は津波に関する Voice of America の放送記事である。この英文に関する以下の問に答えなさい。

Tsunamis happen after an earthquake strikes, either near or under the ocean. The earthquake displaces a large amount of water in the ocean. Waves then rush inland quickly and powerfully, causing death and destruction. Scientists say that strong earthquakes under the sea are responsible for eighty to ninety percent of all tsunamis. Volcanic explosions can also cause a tsunami. So could a large piece of land sliding into the water or when a rock from space strikes the ocean. There have been three major tsunamis worldwide in the past seven years. Generally, a major tsunami happens only once every ten years.

In the deep ocean, a tsunami wave may rise up only about three hundred millimeters. In fact, people on a boat at sea may not even know that a tsunami wave has just moved past them. Tsunamis are long waves that can travel great distances very quickly - some move at over eight hundred kilometers an hour. They can cross an ocean in less than a day. And a tsunami is not just one wave, but a series of waves. Some of the waves can be huge. Scientists say the first wave is often not the largest. That is usually the third or fourth wave. The waves can be from five minutes to one hour apart.

How is a tsunami wave caused? The land underneath the ocean is made up of tectonic plates. These large areas are always moving. Usually the plates just rub up against each other on a crack, also called a fault line. Sometimes, one plate subducts -- or slides under -- another plate. Over time, a huge amount of pressure builds up on the plate that has slid under the other. It suddenly springs up, resulting in an earthquake. The large subduction zone earthquakes are responsible for most of the ocean-wide tsunamis, such as the recent tsunami in Japan.

Scientists are able to measure the strength and position of earthquakes because there are hundreds of seismic monitoring stations around the world. If it is a strong quake and it happens near or in the ocean, computers quickly measure the length, depth and location of a quake. These measurements help to show how strong a resulting tsunami might be.

When a tsunami forms, the wave can spread out quickly. As it gets close to land, the force of the water builds. People near the ocean may hear a loud, sucking sound, or a noise similar to a train or airplane. Then, a “drawback” may happen. Suddenly, a large area of coastline has very little water on it, because the water is moving away from land. But sometimes there is no drawback, and high waves come quickly toward the land with no warning. Some tsunami waves reach as high as thirty meters.

（Science in the News 2011 年６月６日の放送原稿より抜粋）

(1) 上記の英文に書かれている津波の性質について日本語で解答しなさい。

(a) 地震以外の津波の原因としては何があるか？　（　　）

(b) 大きな津波は通常どれぐらいの頻度で起きるか？　（　　）

(c) 津波の移動速度は最高で時速何キロメートルぐらいか？　（　　）

(b) 津波の各波が押し寄せる間隔（時間）はどれぐらいか？　（　　）

(2) 上記の英文にある下記の単語（文中において下線により表示）の意味を前後関係などから推測して日本語で書きなさい。

(a) subduct（動詞）　（　　）

(b) seismic（形容詞）　（　　）

(3) 上記の英文の最終段落（When a tsunami forms, ... thirty meters.）を日本語に訳しなさい。

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.