請將答案寫在試卷內（非選擇題作答區），並請標明題號。

1. Please write the following paragraphs in Chinese (no need to translate word by word). (30%)

A. The Earth is a complex system in which rock, oceans, air, and life are interconnected. This system is unique in the Solar System. (5%)

B. Internal energy (due to the make-up and processes occurring in our planet's interior) drives the motion of plates, and the interactions among plates, in turn, drive a variety of geologic phenomena, such as the uplift of mountain ranges, the eruption of volcanoes, the vibration of earthquakes, and the drift of continents. But what plate tectonics builds, other Earth processes tear down. Specifically, gravity causes materials at the tops of cliffs to slip down to lower elevations. And external energy (provided by the Sun), along with gravity, drives the flow of water, ice and wind on the Earth's surface – this flow acts like a rasp (銼刀), capable of eventually grinding away even the highest mountain. (15%)

C. Natural features and processes on earth can be a hazard – earthquakes, volcanic eruptions, floods, hurricanes, and landslides can devastate societies. But understanding these features can help prevent damage and save lives. (5%)

D. Energy and material resources come largely from the Earth. Geologic knowledge can help find them and can help people understand the consequences of using them. (5%)

2. Please write in English a paragraph (200-300 words) to tell us why you want to study for a MS degree in marine geology and geophysics at the Institute of Oceanography, National Taiwan University. (20%)

3. Please translate the following paragraphs into Chinese. (50%)

A. A rip current (回流) is a strong flow of water returning seaward along the shore. When wind and waves push water to the shore, the previous backwash is often pushed sideways by the oncoming waves. The backwash streams along the shoreline until it finds an exit back to the sea. The resulting rip current is usually narrow and located in trenches between sandbars, under piers, or along jetties. The current is strongest at the surface and can dampen incoming waves, which might make the area seem deceptively calm. That's one thing to look for when searching for rip currents: unusually calm waters. The color of the water may be different from the surrounding area, and the waterline will be lower on the shore near a rip current. (25%)

B. Hyperpycnal flows (超重流) are defined as negatively buoyant fluvial discharges resulting from high concentrations of suspended sediment that are denser than the oceanic waters into which they are discharged. On the basis of water temperature and the salinity of oceanic coastal waters, fluvial waters with sediment concentrations of ca. 40 g/L will produce hyperpycnal flows. Hyperpycnal events occurring in small- and medium-sized rivers are particularly common in Taiwan; they are often related to landslides or debris flows initiated and transported by typhoon floods. Typhoon Herb triggered floods and landslides throughout the southern part of the island. (25%)

試題隨卷繳回