Please note that the written style (i.e. organization and grammar) will be taken into account in the grading of your paper, no matter in English or in Chinese.

1) 以下是一則有關台灣一月份地震的英文新聞報導。在這新聞稿中總共有 15 處英文錯誤。請將錯誤挑出、改正。做答時請寫下正確全文及將改正處劃底線。（共 15 分）

Strong quake rocks eastern Taiwan, no casualties reporting

Taipei - A strong earthquake measuring 6.2 on the Richter scale shaken eastern Taiwan in Thursday (Jan. 25, 2007), but there are no immediate reports of casualties or damage, seismology and police said.

'The quake with a deep of 5 kilometres occurring undersea in 6:59 pm (1059 GMT). It locate 61.9 kilometers east-south of Taitung in eastern Taiwan,' the Earthquake Centre under the Central Weather Bureau say in a news release.

The tremor felt in eastern, southern and central Taiwan, with Taitung and Hualien in the east being the most affect area, the centre said.

Police and residents saying no damage or casualties were caused by the quake.

此大題包括翻譯及問答。所以詳讀以下的文章，然後依題回答。此大題皆用中文回答。

Encompassing most of central and western India, the Deccan Traps is the world's largest continental flood-basalt province outside Siberia. In the 1970s, it was a candidate for storing nuclear waste, but fears of ground-water contamination killed that idea. Now it is being proposed as a site for locking away another global nuisance, carbon dioxide (CO_2) — perhaps enough to make a significant dent in global warming.

The Deccan Traps is a thick pile of solidified lava from volcanic eruptions 65 million years ago. Indian and American geologists have launched a joint study to see how well they can trap the CO_2 that has been captured from coal-fired power stations within and below the basalt layers.

Inspiration for the project came from research at the Pacific Northwest National Laboratory (PNNL) in Richland, Washington, which found that water saturated with CO_2 reacts rapidly with basalt to form stable carbonate minerals. Many countries have considered capturing CO_2 from power stations and storing it in aquifers or used oil wells, but there is always a risk that the dissolved gas could escape. If the gas could be converted into solid minerals within rock, however, it could be locked away long-term.

Pete McGrail of the PNNL reported the findings to a conference on CO_2 capture and storage held in Hyderabad in India on 12–13 January. The US Pacific Northwest has similar basalt deposits, which McGrail's group now estimates could hold more than 50 gigatonnes of CO_2.

（背面仍有題目，請繼續作答）

"We are lucky to have the Deccan Traps, which is much bigger," says Ramakrishna Sonde, executive director of the National Thermal Power Corporation (NTPC) in New Delhi, which builds and runs India's coal-fired power stations. The NTPC is collaborating with the PNNL and the National Geophysical Research Institute (NGRI) in Hyderabad on the pilot study. Sonde says that he tentatively estimates that the Deccan Traps might be able to hold 150 gigatonnes of CO_2 — as much as the world's power industry might emit in 15 years.

The three-way project, to which India has committed US$1.3 million, is one of the 17 initiatives endorsed by the Carbon Sequestration Leadership Forum, a voluntary climate initiative of which India was a founding member. "We look at coal as a dominant energy source, so CO_2 sequestration is something we cannot ignore," Malti Goel, a senior official in the Indian science ministry and co-chair of the Hyderabad conference, told *Nature*.

NGRI scientists admit that basalt isn't very porous, making it hard to disperse CO_2 through the rock, but say that this is compensated by its high reactivity with the gas. The ultimate idea is to pump supercritical CO_2 into porous sedimentary rocks below the basalt layer. The gas would move upwards though the rock and react with the basalt above, forming a 'cap' that would stop any unreacted gas from escaping.

Some geologists, however, seem to be sceptical about the whole project. "I will not recommend CO_2 sequestration in volcanic areas," says Kiran Shankar Misra, deputy director general of the Geological Survey of India. "These are regions that are hot, and the basalts are highly fractured." He says that he is worried that the heat in the rock would cause the dissolved CO_2 to become gaseous, and that it could then seep out through the fractures. "The CO_2 will not stay there."

Hetu Sheth, a geologist at the Indian Institute of Technology, Bombay, points out that unlike the Columbia River basalts, which are only 14 million to 17 million years old, the Deccan lavas are highly weathered, meaning that they will already have reacted with CO_2 in the air to a certain extent. "Their capacity for reacting with newly injected CO_2 may therefore be low, certainly lower than the Columbia River basalts," says Sheth.

Before any CO_2 is injected into the Deccan basalts, an initial phase of the project, scheduled to take 18 months, will characterize the permeability and porosity of the rock. It will also look at the nature of faults within the rock, to determine how CO_2 would flow through the rock once injected. The PNNL is due to start pumping CO_2 into the Columbia River basin basalts later this year, a project that Sonde says India is "keenly watching".

2）請翻譯第一段文章 "Encompassing most of..... a significant dent in global warming." （15 分）

3）從本文中提出數據平均每年發電廠產生會有多少噸的 CO_2？（5 分）

4）本文中提到有那些方法儲藏發電廠所產生的 CO_2？請仔細說明。（15 分）

5）本文也提到有些科學家對這些儲藏 CO_2 的方法有些存疑 能否說明這些科學家的意見。（10 分）

6) 系上大頭近來認識了一個德國來的女學生叫 Ute。Ute 是來研究中國科技史。有一天 Ute 找到一張圖案，認不出是什麼東西。問大頭那是什麼。大頭一看，原來那是漢朝張衡（Chang Heng, Han Dynasty)發明的地震儀（seismometer, 如圖右）。根據記載發明時間大概在西元 132 年，當地震發生時，看是拿那一方向的龍口中的球掉入下面青蛙的口中，就知地震大致的方向。請你幫忙大頭用**英文**跟 Ute 來解釋是誰、什麼時候發明此地震儀及如何偵測地震。(20 分)

7) 請你用**英文**寫出地球四季的成因。(20 分)