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考試科目： 科學英文

考試日期： 0307 · 節次： 1

※ 考生請注意：本試題 可 不可 使用計算機

(1) The following article is a report about the earthquakes observed in Yellowstone National Park, US. The words underlined are grammatically incorrect (total in ten). Correct the underlined words with appropriate grammatical form. Please write down your answer followed by the number (marked in the parentheses) or you will lose the points. (20%)

The University of Utah Seismograph Stations reports that a notable swarm of earthquakes have (1) been underway since December 26, 2008 beneath Yellowstone Lake in Yellowstone National Park, three to six miles south-southeast of Fishing Bridge, Wyoming. This energetic sequence of events was most intense on December 27, when the largest number of events of magnitude 3 and large (2) occurred. The largest of the earthquakes was a magnitude 3.9 at 10:15 pm MST at (3) December 27. The sequence has included nine events of magnitude 3 to 3.9 and approximately 24 of magnitude 2 to 3 at the time of this release. A total of more than 250 events large enough to be locates (4) have occurred in this swarm. Reliable deep (5) of the larger events are up to a few miles. Visitors and National Park Service (NPS) employees in the Yellowstone Lake area reported feeling the larger (6) of these earthquakes. Earthquakes are a common occurrence in the Yellowstone National Park area, a (7) active volcanic-tectonic area averaging 1,000 to 2,000 earthquakes a year. Yellowstone's 10,000 geysers and hot springs are the result of this geologic activity. This December 2008 earthquake sequence is the more (8) intense in this area for some years and is centered on the east side of the Yellowstone caldera. Scientists cannot identify any causative fault or other feature without further analysis. Seismologists continue to monitor and analysis (9) the data and will issue new information if the situation warrant (10) it.

(2) Please translate the following paragraphs into Chinese.

- a) Researchers in the United States are making small diamonds bigger. In 12 hours they can expand a 3.5-mm square slab of synthetic diamond to one 4.2 mm across. Large, perfect crystals like this should broaden diamond's technological applications. Bigger diamonds will enable researchers to test more material in diamond-toothed anvils. These are used to study the composition and behavior of rocks under the kinds of immense pressures that they experience deep inside the Earth. (10%)
- b) At the heart of the Earth lies a solid iron ball, about as hot as the surface of the sun. Researchers call it "the inner core." The inner core is 70% as wide as the moon. It spins at its own rate, as much as 0.2° of longitude per year faster than the Earth above it, and it has its own ocean: a very deep layer of liquid iron known as "the outer core." Earth's magnetic field comes from this ocean of iron, which is an electrically conducting fluid in constant motion. Sitting atop the hot inner core, the liquid outer core seethes and roils like water in a pan on a hot stove. The outer core also has "hurricanes"—whirlpools powered by the Coriolis forces of Earth's rotation. These complex motions generate our planet's magnetism through a process called the dynamo effect. (15%)

(3) Please translate the following sentences into English.

- a) H₂O 在不同的溫度及壓力下會呈現氣、液和固相不同狀態。(10%)
- b) 最近的研究報告指一百年後的海平面將會比現今高上一公尺。(10%)
- c) 目前地球大氣中所含的氣體，約有五分之四的氮氣與五分之一的氧氣。在過去五億年間，大氣中的氧氣含量，曾經可以高達 10% 到 30% 之間。(15%)

(4) The increased CO₂ is believed to be responsible for a significant rise in global temperature over the past several decades. Please make a brief comment on how we are going to reduce the CO₂ emissions. (The answer needs to be written in English, within 100 words.) (20%)