1. Please write the following article in Chinese (no need to translate word by word) (40%)

What is **Scientific Thinking**? Let's define a few of these terms as scientists use them:
Hypothesis: an educated guess as to the outcome of a particular experiment or phenomenon.
Observation: a set of data based on measurements obtained using one or more of the five human senses, including instrumentation designed to enhance those senses, such as telescopes or microscopes.
Data: a set of observations.
Experiment: a test designed to eliminate a possible outcome or to verify the occurrence of a phenomenon.
Theory: a hypothesis that has withstood the test of time.
Prediction: statement of a particular outcome that must be true if a hypothesis is true.
How do scientists apply these terms? Try it. Look around you. Make careful observations. What do you see? What kinds of phenomena define the ocean? the beach? the coast? What kind of organisms travel along or within the beach or sea? What kinds of things can't you see that you might be curious about? Don't limit yourself or your thinking. Stretch your mind. Include, the sea, the sky, the land. Observe the big picture as well as the tiny picture. Write your observations in the form of questions. Ask yourself if the question would be easy to answer through experiment or further observation. If not, try to think of a way to ask the question that might make it easier to answer. Once you have finished writing your questions, pick one and try to form a couple possible answers. Frame them in the form of hypotheses. Try to decide whether your hypothesis is better framed as a negative or positive. For any hypotheses, list some predictions that might be true if the hypothesis is true. What do you expect to see based on your hypotheses? If you're starting to look at the world a bit differently now, you've succeeded. You've taken your first step into the art of scientific thinking.

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

Earth system science views the Earth as a synergistic physical system of interrelated phenomena, governed by complex processes involving the geosphere, atmosphere, hydrosphere and. biosphere. Fundamental to the Earth system science approach is the need to emphasize relevant interactions of chemical, physical, biological and dynamical processes that extend over spatial scales from microns to the size of planetary orbits, and over time scales of milliseconds to billions of years. In building on the traditional disciplines to study the Earth, the system approach has become widely accepted as a framework from which to pose disciplinary and interdisciplinary questions in relationship to humankind.
Within the concept of the Earth as a complex and dynamic entity involving the disciplinary spheres for land, air, water and life, there is no process or phenomenon that occurs in complete isolation from other elements of the system.

3. Please translate the following paragraph to English (30%)

台灣位於菲律賓海的西緣，是琉球島弧與呂宋島弧相交之處。從 1970 年代初期板塊構造學說被用來解釋台灣島的形成與演化，「台灣島是由於菲律賓海板塊上的呂宋島弧碰撞上歐亞大陸邊緣，使海床隆起浮出水面而形成的」這個弧-陸碰撞造山模式即廣爲一般人所接受。而發生在台灣的斜向弧-陸碰撞提供了觀察造山運動不同階段構造變化的機會，更使得台灣成爲世界上研究弧-陸碰撞造山運動最吸引人的天然實驗室。

試題隨卷繳回