I. Please choose the best answer to each question based on the following passages (20%)

1. Scientists generally agree that throughout childhood, human personality and patterns of behavior are shaped by the joint interaction of inherited characteristics and environmental influences. There remains, however, some dispute over their relative degree of influence. The critical question eluding researchers today involves the genetic factor. If scientists can determine exactly which traits are embedded in human genes, a simple process of elimination should reveal which of the remaining traits are produced by environmental interaction.

Unfortunately, the issue is much more complicated than it seems at first glance. Most researchers believe that hereditary traits begin initially as mere potentials, which may remain dormant until stimulated by the environment. These potentials, upon expressing, become full-fledged traits, or what scientists refer to as phenotypes (from the Greek *phaino-*, meaning "to show"). A phenotype is simply any observable characteristic of an organism, as determined by its genetic makeup and environmental influences. As such, each phenotype expresses varying degree of genetic determinism and susceptibility to environmental modifications. For instance, traits such as eye color and blood type are determined at birth and unreceptive to change, whereas skin color and weight, though also conditioned by hereditary propensities, may change in response to outside factors (i.e. sun tanning, diet programs, etc.).

Elements of the human personality involve even more complicated interactions. Certain traits such as attentiveness or temperament in a child will induce different reactions from the parents. These reactions in turn bring about changes in the child's behavior and way of thinking. Further complicating the issue is that researchers have discovered various periods during adolescence when children are more prone to certain types of change. For example, at one point, the child is receptive to language learning, but at another, open to developing feelings of guilt. If proper care is not taken to educate and assist children through these delicate periods, adverse results may occur.

(1). What does the passage mainly discuss?

(A) Modern gene research

(B) How personality traits develop

(C) Child raising

(D) The effects of environment

(背面仍有題目,請繼續作答)

(2). The author mentions eye color and blood type in paragraph two as examples of
(A) response to outside influences
(B) environmental factors that influence personality
(C) traits that do not change due to the environment
(D) traits susceptible to environmental influence

(3). Which of the following is NOT a typical phenotype mentioned by the author?
(A) sun tan
(B) eye color
(C) blood type
(D) weight

(4). The author states that children's behavior changes in reaction to
(A) weather
(B) time period
(C) parental reactions
(D) temperament

(5). The passage supports which of the following statements about personality traits?
(A) Most personality traits are either learned from parents or studied in school.
(B) Environmental conditions can only alter physical traits.
(C) Children have more hereditary traits than environmental ones.
(D) Traits are influenced by a complex combination of heredity and environmental factors.

2. One of the very important concepts in a study of thermodynamics is the concept of energy. Energy is a fundamental concept, such as mass or force and, as is often the case with such concepts, is very difficult to define. Energy has been defined as the capability to produce an effect. It is important to note that energy can be stored within a system and can be transferred (as heat, for example) from one system to another.

Consider a system as a certain gas at a given pressure and temperature contained within a tank or pressure vessel. When considered from the molecular view, we identify three general forms of energy.

1. Intermolecular potential energy, which is associated with the forces between molecules.
2. Molecular kinetic energy, which is associated with the translational velocity of individual molecules.
3. Intramolecular energy (that within the individual molecules), which is associated with the molecular and atomic structure and related forces.

The first of these forms of energy, the intermolecular potential energy, depends on the magnitude of the intermolecular forces and the position the molecules have relative to each other at any instant of time. It is impossible to determine accurately the magnitude of this energy because we do not know either the exact configuration and orientation of the molecules at any time, or the exact intermolecular potential function.

However, there are two situations for which we can make good approximations. The first situation is at low or moderate densities. In this case the molecules are relatively widely spaced. The second situation is at very low densities; under these conditions the average intermolecular distance between molecules is so large that the potential energy may be assumed to be zero. Consequently, we have in this case a system of independent particles (an ideal gas) and, therefore, from a statistical point of view, we are able to concentrate our efforts on evaluating the molecular translational and internal energies.

The translational energy, which depends only on the mass and velocities of the molecules, is determined by using the equations of mechanics either quantum or classical.

True (T) or False (F)

(6). Energy is unmovable; it can only exist in one system.
(7). Energy can be stored in a molecule.
(8). Intramolecular energy is a form of energy between two molecules.
(9). From the molecular view, energy can be described with three kinds of definitions.
(10). When a particle moves, we should take into account Molecular Kinetic energy and Intramolecular energy.

II. Please translate the following Chinese passages into English (40%)

1. 之前，我要是對一本書真感興趣，我往往一頁一頁拼命往下翻，急於要知道下文究竟是什麼。現在，我決定對詞彙要像守財奴那樣不輕易放過，也要像窮人過日子，把每個句子當作身邊最後一塊錢，盡量拖延，慢慢花掉。剛開始我是從實際出發，使我讀的書慢慢拖延下去。但過了兩個星期，我就開始領略超慢速閱讀本身給我的效益了。吸引我注意的有時是個別的短語，有時卻是整個句子。我總是慢條斯理地讀，然後分析揣摩，然後又重新閱讀，然後靜坐默思二十分鐘，接著才又往下閱讀。 (From *The Special Joys of Super-Slow Reading*, by Sydney Piddington)

（背面仍有題目,請繼續作答）

2. 在台灣學習第二外語成為一種新的風潮，也可以說是時勢所趨。由於國際文化交流頻繁與出國旅遊人數逐漸增加，除了英語外的日語、法語或德語等也是非常受歡迎的語言。語言是接觸各種文化與風俗的溝通橋樑，能擴展我們的視野，充實我們的生活。不過學新的語言必須要持之以恆，不可半途而廢。若能從自己感興趣的主題著手來學習你想學的語言，則能達到事半功倍的成效。(From LIVE 互動英語雜誌)
3. 此研究探討以中文為母語的威廉氏症候群兒童的語言能力，主要基於一個假設：威廉氏症候群兒童可能在語句形式與語意表達上出現雙向分離 (double dissociation)的表現，亦即，此族群的句法能力在基因缺損之後依然相當完好，而語意能力卻有理解上的困難。過去的研究顯示威廉氏症候群有很好的語言工作記憶能力，因而許多的研究者假設此能力是導致威廉氏症候群語言能力完好的主要原因。換句話說，威廉氏症候群是依靠記憶或背誦在學習語言。這樣的假設似乎可以解釋他們的語法能力與語意能力之間的差異。但是，這個假設需要被檢定。(Dissertation Abstract )
4. 聽力技巧不論對於母語或第二語言習得均扮演著相當重要的角色。藉由聽力技巧的訓練，學生們不但能更加熟習聽力技巧，還能用英語表情達意。近年來，聽力的學習因為發達的電腦科技以及網際網路的問世變得更加方便也更具彈性。先前的研究已指出學生們對於使用線上教材和聽力網站抱持著非常正面的態度。然而，少有研究在瞭解學生的態度之外更進一步評量這些教材的益處。此外，新科技雖然提供教師們選擇教材的新方向，但由於教材品質不明，在選擇時也常遭遇困難。同時，相關文獻雖已指出許多形成聽力困難的因素，這些因素卻尚未用以建構一套評量聽力教材的裝置。鑑於先前研究的不足以及評量聽力教材工具的需要，這份研究旨在探討線上聽力教材對學生聽力發展的影響以及提出一個以三個影響聽力的因素構成之評量聽力教材難易度的公式。(Dissertation Abstract )

III. Please write an essay for <u>at least 500 words</u> in responding to the following questions. (40%)

Describe the reasons why you choose to work on linguistics or language education.

What have you prepared for the graduate studies?

What might be your major research interests in the fields of linguistics or language education, and why?