

國立嘉義大學九十七學年度
微生物與免疫學系碩士班招生考試試題

科目：專業英文

I. Translation from English to Chinese: (60%, 5-10% each)

- (A) The search for antiviral drugs has been more difficult than the search for antibacterial drugs primarily because viral replication depends on the metabolic processes of the invaded cell. Thus, antiviral drugs are also likely to cause harm to the cells that harbor the virus. The challenge in developing antiviral drugs has been to understand the biochemistry of viruses and to develop drugs that target processes specific to them. Compared with the large number of antibacterial drugs that are available, there are only a handful of antiviral drugs, and they have nowhere near the effectiveness that antibiotics have on bacterial infections. (10%)
- (B) Soon after the penicillins were introduced into medical practice, penicillin-resistant strains of bacteria began to appear and have since proliferated. One approach to combating resistant strains is to synthesize newer, more effective penicillins. One approach is to search for newer, more effective β -lactam antibiotics. So far the most effective of these discovered are the cephalosporins, the first of which was isolated from the fungus *Cephalosporium acremonium*. This class of β -lactam antibiotics have an even broader spectrum of antibacterial activity than the penicillins and is effective against many penicillin-resistant bacterial strains. (10%)
- (C) Lactose is the principal carbohydrate in milk; human milk and cow's milk contains about 5% lactose by weight. Human babies are born with digestive enzymes necessary to hydrolyze lactose to glucose and galactose, but, as they mature, many lose the ability to hydrolyze lactose, a condition known as lactose intolerance. Nevertheless, intestinal bacteria ferment indigestible lactose to gases, chiefly carbon dioxide, methane, and hydrogen, which irritate the intestinal lining and lead to nausea and vomiting. (10%)
- (D) Many readers find comic-book superheroes relevant because superheroes face choices of good and evil just as the readers themselves do. (5%)
- (E) The *Star Wars* series also suggests that even the docile being can be strong and fierce when forced to fight in defense of home and freedom. (5%)
- (F) According to legend, King Arthur's knights lived by the code of chivalry. They were always brave and courteous, and they were quick to follow their duty. (5%)
- (G) The "*Odyssey*", which tells the story of Odysseus' journey home after the fall of Troy, is a famous Greek epic. The Greeks also had another famous poem, the *Iliad*, about the adventures of great heroes. (5%)
- (H) When a group of high school students decided to write and produce a play about a teenage girl who gets lost in the Louvre in Paris, they asked an art student to make a replica of Da Vinci's famous painting, *Mona Lisa*. (5%)
- (I) Beat eggs with peanut butter, then add milk and combine well. In separate bowl, combine flour, sugar, and baking powder. Combine the dry mixture with the peanut butter mixture and mix well. Drop by rounded teaspoons onto lightly greased cookie sheet, leaving about 1 inch in between cookies before baking at 350-degree °F for 20 to 25 minutes. (5%)

II. Translation from Chinese to English: (20%, 5% each)

- (A) 電力公司的火力發電廠每日排放出太多的二氧化碳，不利於全球暖化的控制與減緩。

(B) 大學老師在目前最關心的事就是“大學評鑑”，因為如果不通過就要減招學生。

(C) 上網玩電玩可能是大學生最喜歡的休閒活動，而且常常會讓他們日以繼夜不休息，也使許多同學精神恍惚及課業成績下滑。

(D) 由於我父母年長且長期患有糖尿病，每三個月都要去醫院掛號看醫生，因此“健保”對我們的家庭經濟的支持幫助很大。

III. Multiple choice (only one correct answer; 20%, 4% each)

- Antigen presenting cells that activate T helper cells ($CD4^+$ T cells) must express which one of the following molecule on their surfaces?
 - B7.1
 - T cell receptor
 - MHC class I molecules
 - MHC class II molecules
 - CD8 molecules
- The counter regulation of T helper cells is
 - Th1 produce IL-10 to inhibit Th2 producing IL-5
 - Th2 produce IFN- γ to suppress Th1 activity
 - Th1 produce IFN- γ to inhibit Th2 producing TNF- α
 - Th2 produce IL-10 to suppress the Th1 production of IFN- γ
 - Th2 produce IL-10 to suppress the Th1 production of both IL-4 and IL-5
- The effector molecule of the humoral immune system which is transported across epithelial cells and into secretory products such as saliva is:
 - IgM
 - Neutrophil
 - C1q
 - Factor P
 - IgA
- Which of the following is a correct statement about NK cells?
 - They proliferate in response to polysaccharide antigens
 - They kill target cells by phagocytosis and intracellular digestion
 - They belong to the population of granulocytes
 - They derive from lymphoid progenitors and kill target cells in an extracellular fashion.
 - They are particularly effective in against invading parasites.
- The following genetics factors could cause allergy **EXCEPT**:
 - Deficiency in $CD3^+CD4^+$ T cells
 - Expression of high affinity of Fc ϵ RI receptors
 - Possess specific MHC locus (HLA-B8; HLA-DW3) make someone presenting antigen better than others
 - Both parents allergic then their child has over 50% chance
 - Distinctive and excessive basophil distributions in connective tissues or submucosal tissues.