編號： 283

國立成功大學 108 學年度碩士班招生考試試題

系　　所：生理學研究所

考試科目：生理學

考試日期：0224，節次：2

※ 考生請注意：本試題不可使用計算機。　請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. There are several fundamental General Principles of Physiology. For examples:
   1) Most physiological functions are controlled by multiple regulatory systems, often working in opposition.
   2) Information flow between cells, tissues, and organs is an essential feature of homeostasis and allows for integration of physiological processes.
   3) Structure is a determinant of function.

   Please give one example to explain each of the above three Principles (30%).

2. One of the goals of physiologists is to delineate the normal physiological systems or pathophysiological mechanisms of diseases at the molecular, cellular and structural levels. Please describe at least one of the possible molecular, cellular, or structural mechanisms of the following diseases or conditions to the best you know (3% of each):
   A. Stroke
   B. Depression
   C. Parkinson's disease
   D. Huntington's disease
   E. Addiction

3. Student Micky is now attending the graduate admission examination and feels nervous. His blood pressure (BP) is determined as 180/120 mmHg (systolic BP/diastolic BP) and heart rate is 90 bpm. According to the knowledge of cardiovascular physiology, please explain (1) how are his blood pressure and heart rate elevated and (2) what is the compensate mechanisms to restore normal values. (25%)

4. In the past 12 months, student Minnie stressfully studied hard to prepare the graduate admission examination. Please describe your expectation how her endocrine system and reproductive system are affected. (20%)

5. Which four processes are essential to accomplish the functions of the digestive system? (4%)
   (A) Digestion, secretion, absorption, and reflex
   (B) Digestion, secretion, absorption, and motility
   (C) Digestion, emulsification, absorption, and motility
   (D) Digestion, metabolism, absorption, and defecation

6. List **six** organs and their function involved in the digestive system. (6%)