※ 考生請注意：本試題 □可　☑不可 使用計算機

1. From CT (電腦斷層) examination, a patient was diagnosed as middle cerebral artery occlusion. (25%)
   a. Describe the brain blood supply.
   b. Diagram the territory of middle cerebral artery
   c. Describe the symptoms which the patient may have?
   d. If you are a doctor, explain how to treat for the patient.

2. A patient was diagnosed as primary (essential) hypertension. (25%)
   a. Draw a flow diagram illustrating the factors that determine mean arterial pressure.
   b. List the factors and underlying mechanisms that may cause hypertension.
   c. At present, how to control hypertension?

3. We know that you will excrete large amount of urine after drinking 1-2 liter of water. (25%)
   a. List the sequence of events leading from increased water intake to increased urine excretion
   b. In this situation, diagram the osmolarities in proximal convoluted tubule, the two limbs of the loop of Henle, distal convoluted tubule, cortical collecting duct, medullary collecting duct.
   c. Contrast this situation to polyuria occurred in diabetes mellitus and diabetes insipidus.

4. At the end of a normal expiration, a person's lung volume is 2 L, his alveolar pressure is 0 mmHg, and his intrapleural pressure is -4 mmHg. He then inhales 800 ml, and at the end of inspiration the alveolar pressure is 0 mmHg and the intrapleural pressure is -8 mmHg. (25%)
   a. Calculate this person's lung compliance.
   b. What factors determine lung compliance?
   c. Describe the area of the brain in which automatic control of rhythmical respirations resides.