

1. Shock is a serious, often life-threatening medical condition where insufficient blood flow reaches the body tissues.
  - A. Please list three major stages of shock based on the progression of shock and describe the cellular or physiological mechanism for each stage (15%).
  - B. Please list four types of shock and explain the pathophysiological mechanism of each type of shock (20%).
2. Hypoxaemia (or hypoxemia) is an abnormal deficiency in the concentration of oxygen in arterial blood.
  - A. Please explain the differences between hypoxia and hypoxaemia (5%).
  - B. Please list five causes of hypoxaemia and explain the pathophysiological mechanism of each cause for hypoxemia (25%).
3. Acid-base homeostasis is the part of human homeostasis concerning the proper balance between acids and bases, in other words the pH.
  - A. Please explain the action mechanisms of respiratory and renal systems are involved in acid-base homeostasis (10%).
  - B. Since Acidosis is much more common than alkalosis, please explain how kidney responds to acidosis and compensates for acid gain or acid loss (10%).
4. Parkinson's disease belongs to a group of conditions called movement disorders.
  - A. Based on motor control in central nervous system, please explain why the patient with Parkinson shows gait and posture disturbances and speech and swallowing disturbances. (10%)
  - B. Please list one non-motor symptoms and explain its pathophysiological mechanism. (5%)