**CHAPTER 7 - HOMEOSTASIS AND NEGATIVE FEEDBACK**

**HOMEOSTASIS THROUGH NEGATIVE FEEDBACK**

**QUESTION 1**

1 a) ADH

 b) kidneys

 c) aldosterone

2. The osmoreceptors in the hypothalamous are stimulated. A message is sent to the pituitary gland to release ADH into the bloodstream. This increases the permeability of the cells in the walls of the distal convoluted and collecting tubules resulting in more water leaving the tubules by osmosis and enters the blood in the capillaries of the medulla. More water is conserved and the blood water content increases, resulting in less urine that is more concentrated being produced.

**QUESTION 2**

1. 23mmol/L

2. It acts as a control to determine if the results obtain in the investigate are due to the physical activity/to establish a baseline reading to compare the results

3. There is an increase in the metabolic rate resulting in an increase in cellular respiration which will produce more energy thus releasing more carbon dioxide.

4. Receptors in the carotid artery are stimulated-nerve impulses are sent to the medulla oblongata which stimulates the intercostals muscles, diaphragm and the heart. Breathing muscles contract more actively increasing the rate and depth of breathing. The heart rate increases, more carbon dioxide moves from the blood and out into the air. As the carbon dioxide concentration returns to normal the breathing rate decreases.

**THERMOREGULATION**

**QUESTION 1**

1. A – epidermis B – dermis C – sweat gland D – sweat pore

 E – hair F – sebaceous gland G – erector muscle H – connective tissue

 I – hair follicle J – blood vessels

2. C and J

3. The blood vessels in the skin constrict (vasoconstriction) less blood flows to the skin and less heat is lost to the environment.

4. The thermoreceptors in the skin and hypothalamus are stimulated. A nerve impulse is sent to the blood vessels causing them to dilate (vasodilation), more blood flows to the skin and more heat is lost to the environment. Another nerve impulse is sent to the sweat glands causing them to secrete more sweat, as the sweat evaporates from the surface of the skin cooling occurs.