

Human Excretory System

- ◆ Excretion - Excretion is the removal of the metabolic _____ of an organism. Removed wastes include carbon _____, water, _____, urea and uric acid. All excreted wastes travel at some time in the _____ stream.
- ◆ Organs of the Excretory System
 1. Lungs – removal of excess _____
 2. Liver – produces urea and uric acid as a by-product of the breakdown of proteins
 3. Skin – removal of excess _____, salt, urea and uric acid
 4. Urinary System – kidneys filter the blood to form _____, which is excess _____, salt, urea and uric acid

The Skin

- ◆ 2 Layers of the Skin
 1. Epidermis – _____ protective layer without blood vessels
 2. Dermis – inner layer containing blood vessels, sensory nerve endings, _____ and oil glands, hairs, and fat cells
- ◆ Functions of the Skin
 1. Excretion – Wastes such as excess water, salt, urea and uric acid are removed from the body in _____.
 2. Waterproofing
 3. Protection from Disease-causing Micro-organisms
 4. Protection from Ultraviolet Rays
 5. Regulation of Body Temperature – The thin layer of fat cells in the dermis insulates the body. Contraction of small muscles attached to hairs forms 'goosebumps' and creates an insulating blanket of _____ air. Also, sweat uses excess body heat to _____, providing a cooling effect.
 6. Sensory Detection – The nerve endings or receptors in the dermis detect heat, cold, touch, pressure and pain.

Human Urinary System

Urine

- ◆ The first nitrogenous waste to be formed from the breakdown of protein is ammonia, a highly toxic chemical that is quickly converted by the _____ to urea and uric acid. These are less toxic than ammonia and are transported in the blood to the kidneys for excretion in urine. Urine consists of excess water, excess _____, urea and uric acid.

Parts of the Urinary System

- ◆ R _____ A _____ – 2 renal arteries constantly transport blood to the kidneys.
- ◆ K _____ – 2 kidneys composed of millions of nephrons constantly filter about 170 to 200 litres of blood to produce about 1.5 to 2 litres of urine each _____.
- ◆ R _____ V _____ – 2 renal veins return useful nutrients back into the _____.
- ◆ U _____ – 2 ureters carry urine from the _____ to the urinary bladder.
- ◆ U _____ B _____ – The urinary bladder temporarily stores _____ until it is released from the body.
- ◆ U _____ – The urethra is the tube that carries urine from the urinary bladder to the _____ of the body.

Draw a labelled diagram of the urinary system.