

Hour : 4

## Circulatory - Excretory Systems and their functions

II-4

### Circulatory System:

#### Components:

- (i) Heart: Pumps blood throughout the body
- (ii) Blood vessels: Includes arteries, veins and capillaries that carry blood to and from the heart & tissues.
- (iii) Blood: The fluid that carries  $O_2$ , nutrients, hormones & waste products.

#### Functions:

1. Transport of Nutrients &  $O_2$
2. Removal of waste products
3. Temperature regulation
4. Immune Response
5. Hormone Distribution

### Excretory System :-

#### Components

- (i) Kidney :- Filters the blood to remove waste products and excess substances forming urine.
- (ii) Ureters: Tubes that carry urine from the kidneys to the bladder.
- (iii) Bladder: Stores urine until it is excreted
- (iv) Urethra: The tube through which urine is expelled from the body.
- (v) Skin (sweat glands): Helps excrete waste products through sweat

(vi) Lungs: Expel carbon di oxide  
a waste product of respiration.

### Functions :-

1. Removal of Metabolic Waste
2. Regulation of water and electrolyte balance
3. Regulation of blood pressure
4. Regulation of blood pH

### Interaction Between the Systems

(i) Blood Filtration :- CS transports blood to the kidneys, where it is filtered by the ES to remove waste products

(ii) Waste Removal :- The CS carries waste products from cells to the kidneys, lungs and skin for excretion.

(iii) Homeostasis :- Both systems work together to maintain the body's internal balance, including fluid levels, pH and electrolyte concentrations.