HOMEOSTASIS

HOMEOSTASIS :-

- It is the state of steady internal chemical and physical conditions maintained by living systems.
- It is crucial for the survival of organisms.
- The body maintains homeostasis by controlling a host of variables ranging from body temperature, blood pH, blood glucose levels to fluid balance, sodium, potassium and calcium ion concentrations.

Regulation of Homeostasis :-

The regulation of homeostasis depends on :-

- Effector
- Receptor
- Control Center

Effector :- The effector responds to the commands of the control centre. It could either oppose or enhance the stimulus.

Receptor :- The receptor is the sensing component responsible for monitoring and responding to changes in the external or internal environment.

Control center :- It receives and processes information from the receptor.

Example :-

Receptor - Cutaneous receptors of the skin

Control centre - Brain

Effector - Blood vessels and sweat glands in the skin.

The skin has receptors that detect changes in temperature. If the external temperature rises or drops below the equilibrium, the control center sends signals to the blood vessels and sweat glands in our skin to react accordingly. If the temperature is too hot, the blood vessels dialate and cause a drop in the body temperature. Moreover, sweat glands produce sweat to accompany vasodilation. If the external temperature is too cold, the blood vessels constrict and enable the body to retain heat.

- Homeostasis is a hormone driven mechanism controlled by many hormons like :-

TSH, tetra iodo thyroxine, ACTH, Aldosterone, ADH, Rennin, Angiotensin II and Insulin,