

Grading.

Quiz - 20%.

Assignments - 30% (4 to 5)

Midsem/Endsem - 40% (20 each) ~~Endsem~~ will only have H2 syllabus

Report after course - 10%.

(Will be given sample report) → Manuscript, have ref. & all.

• Biology: Study of life

• What is life? ← ∴ Erwin Schrodinger, Physicist
1943, lecture on 'What is life?'

| See book of lec.

→ Matter + Energy

→ "Aperiodic molecule".

Covalent bonding

→ Time when people were exploring what DNA is.

| History of nucleic acid

1954 ∴ Watson & Crick - Discovered double helical structure of DNA.

Genetic info - Initially thought Proteins.

∴
DNA

Muller
Avery McCord
Delbeing

| Read discovery of DNA

Characteristics of life.

- 1) Reproduction, grow, divide. (Pass genetic info from one gen. to another)
- 2) Response to stimuli

| Is virus a living organism?

3) Ordered (Organised)

4) Genetic info. / Evolve (Ability to adapt \rightarrow Mutation).

5) Do work (Metabolism)

6) Cell

7) Survive.

8) Development

\downarrow
Change in
nucleotide in
DNA

\rightarrow Time scale of 'response to stimuli' & 'evolution' is diff.

\rightarrow High altitude.

Response to stimuli: Breathe freq. inc.

Adaptation: RBC count increases. (Time scale: month)

\rightarrow Metabolism: R^{xns} (chem.) inside a system.

Cell
theory

\rightarrow Entropy of human body.

Taking in chem. energy & releasing heat

\Rightarrow Decreasing entropy of system & inc. entropy of surr.

\rightarrow When universe is going towards disorder, how are we able to maintain order? Utilising energy to maintain order.

Work: Chem. energy \longrightarrow Chem. energy + Heat
(Food) (ATP)

\rightarrow Life started as a single cell.

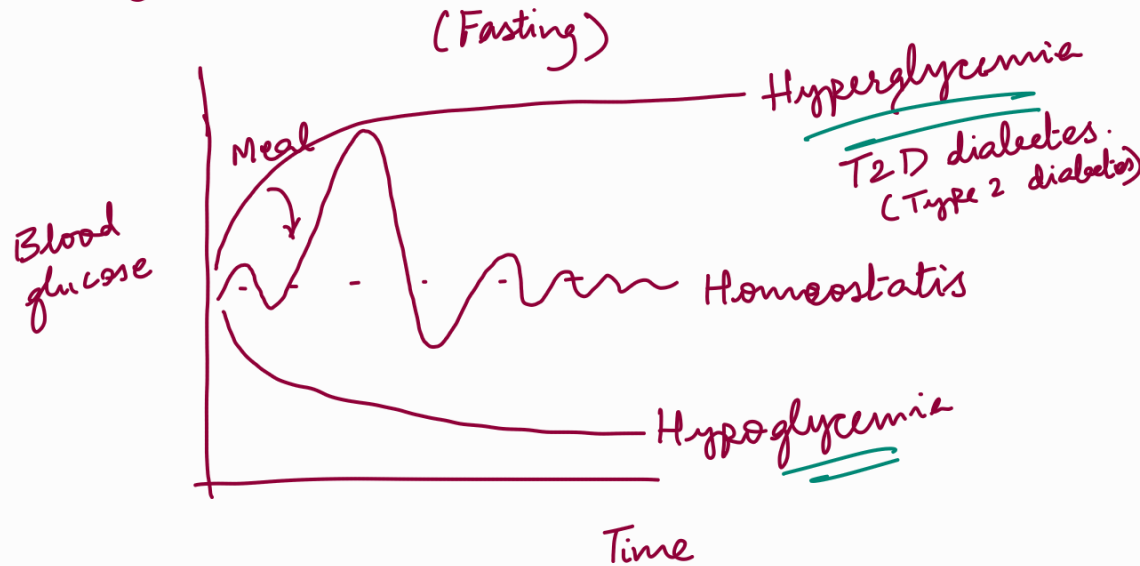
Single cell \longrightarrow Multicell.

$\underbrace{\hspace{1cm}}$
Study: Developmental biology.

Asymmetry from symmetry

Homeostatis. : The ability to maintain certain things at certain levels/states.

Eg: Blood glucose (80-100 mg/dL)



Diabetes : T2D (Type 2) → Hyperglycemia
T1D (Type 1)

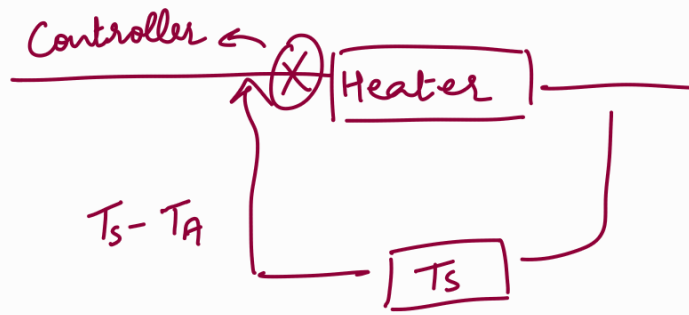
"Controller" → Insulin. (Secreted by Pancreas).

Eg: Heater.

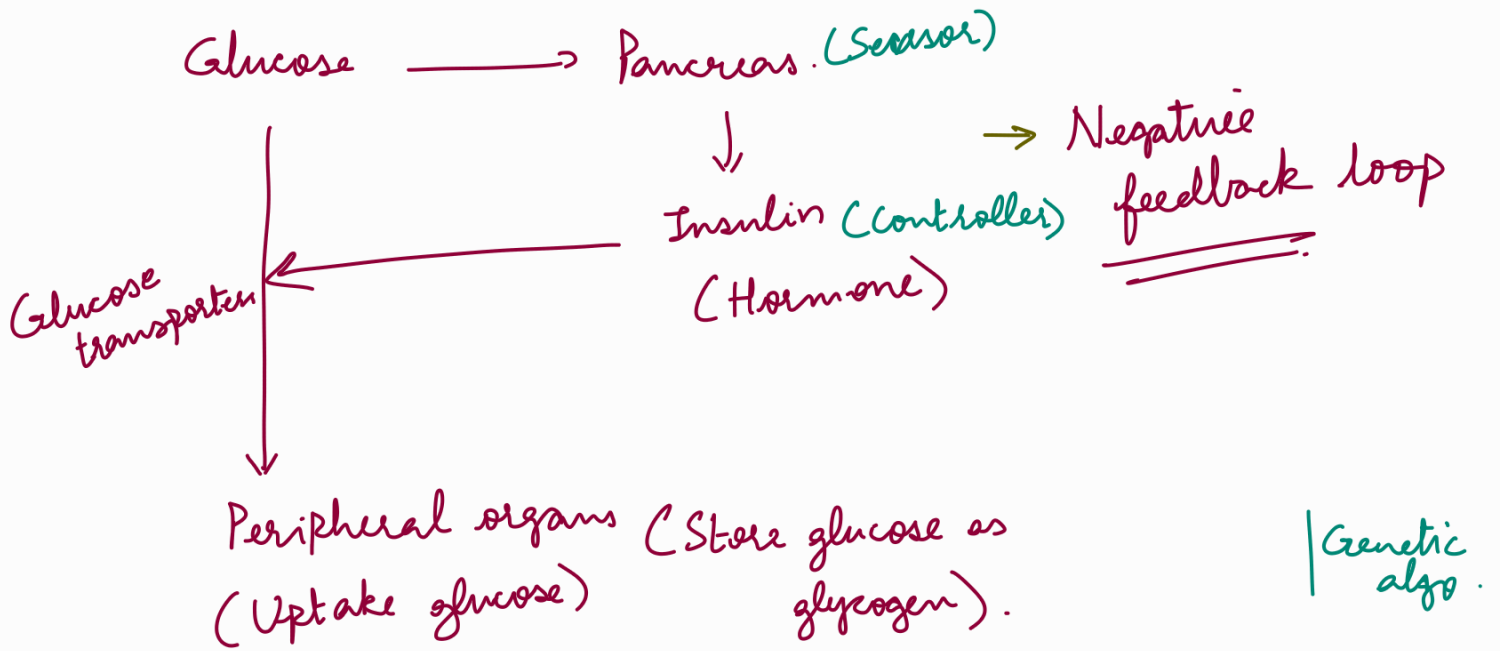
Closed loop system.

Sense room temp.

Room temp - Set temp $\xrightarrow{\text{Error}}$ Thermostat
↓
Turns on/off /
Operates heater acc.



Closed loop sys.



Half life of DNA. ~ 60 yrs?