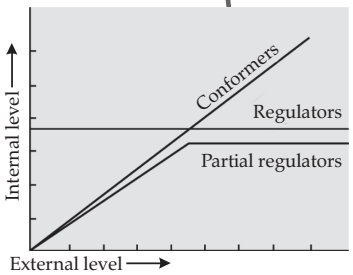
# MIND MAP : LEARNING MADE SIMPLE

CHAPTER - 13

## Organisms and Populations

### Organisms and its Environment

- Major abiotic factors
  - Temperature
  - Water
  - Light
  - Soil
- Response to abiotic factors
  - Regulate
  - Conform
  - Migrate
  - Suspend
- Organismic response




- Adaptations

Attribute of organism's morphological, physiological and behavioural changes that enables the organisms to survive and reproduce in its habitat.

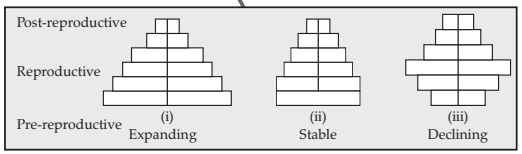
- Adaptation in kangaroo rat
  - Meeting water requirement by fat oxidation
  - Produce concentrate urine
- Adaptation in Desert plant
  - Thick cuticle on leaf
  - CAM
  - No leaves
- Adaptation in Mammals
  - Allen's rule
  - Thick layer of fat (as in seal)
- Adaptation in Lizards
  - Absorb heat
  - Move into shade
- Adaptation in High Altitude in humans
  - People suffer from mountain sickness
  - Relief occur due to acclimatization: Increasing breathing rate, increasing RBCs production.

### Population Interaction

| Species A | Species B | Name of Interaction |
|---|---|---|
| + | + | Mutualism |
| − | − | Competition |
| + | − | Predation |
| + | − | Parasitism |
| + | 0 | Commensalism |
| − | 0 | Ammensalism |

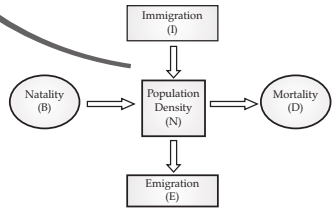
### Population Attributes

- Population Size
- Natality rate
- Mortality rate
- Sex Ratio
- Age Pyramids




### Population Growth

- Population Density
  - Natality
  - Mortality
  - Immigration
  - Emigration




- Popn. density eqn.

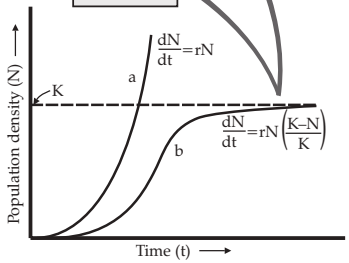
$$N_{t+1}=N_t+[(B+I)-(D+E)]$$

- Growth Models
  - Logistic Growth

$$dN/dt=rN\left(\frac{K-N}{K}\right)$$

  - Exponential Growth

$$N_t=N_0e^{rt}$$

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