Date:

HOMEOSTASIS:

→ constant internal envoirnment of a living organism

↓ range of factors - temp. of a body 37°-40°C

forming or making internal conditions
- temp. pH, H_2O
- concentration of certain chemicals (glucose)

- maintaining constant envoirnment (internal) by a living organism
- negative feedback mechanism

1. Regulation of Temperature
2. Regulation of Water
3. Regulation of Glucose

Homeostasis: is the regulation of internal conditions of a cell or organism to maintain optimum conditions for function in response to internal and external changes.

(sense organs)

Stimulus → Receptors → Homeostasis organs

Change in the immediate external envoirnment of living organisms.

Responses

Back to normal

REGULATION OF WATER:

- osmoregulation

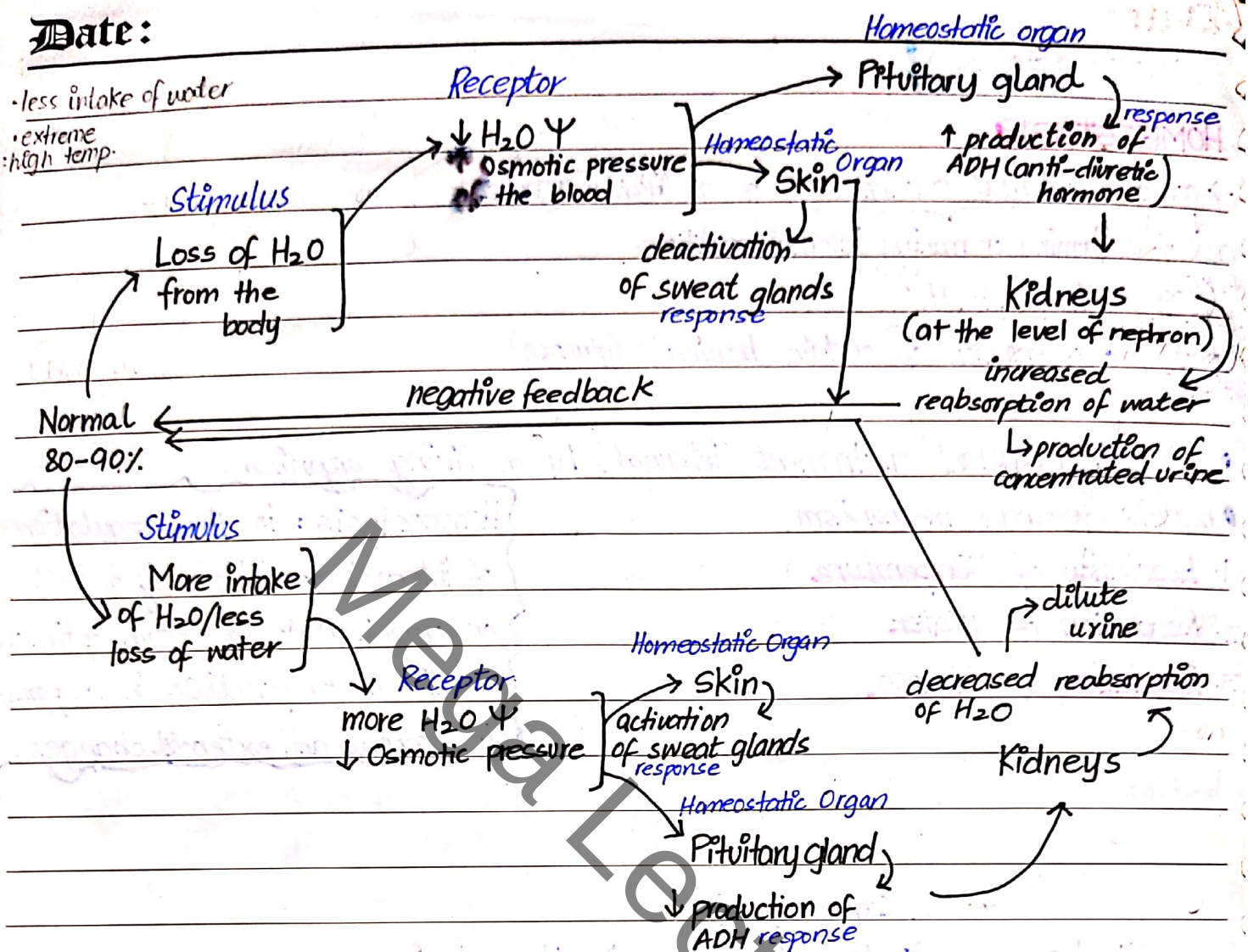
A		dilute B		concentrated C
H_2O distilled		H_2O + solutes		H_2O + solutes
10 mol		10+2 mol.		10+6 mol.
zero H_2O Ψ		-ve H_2O Ψ		-ve H_2O Ψ

the solutions being dilute and concentrated depends on the comparison provided

H_2O potential: presence of water in a container

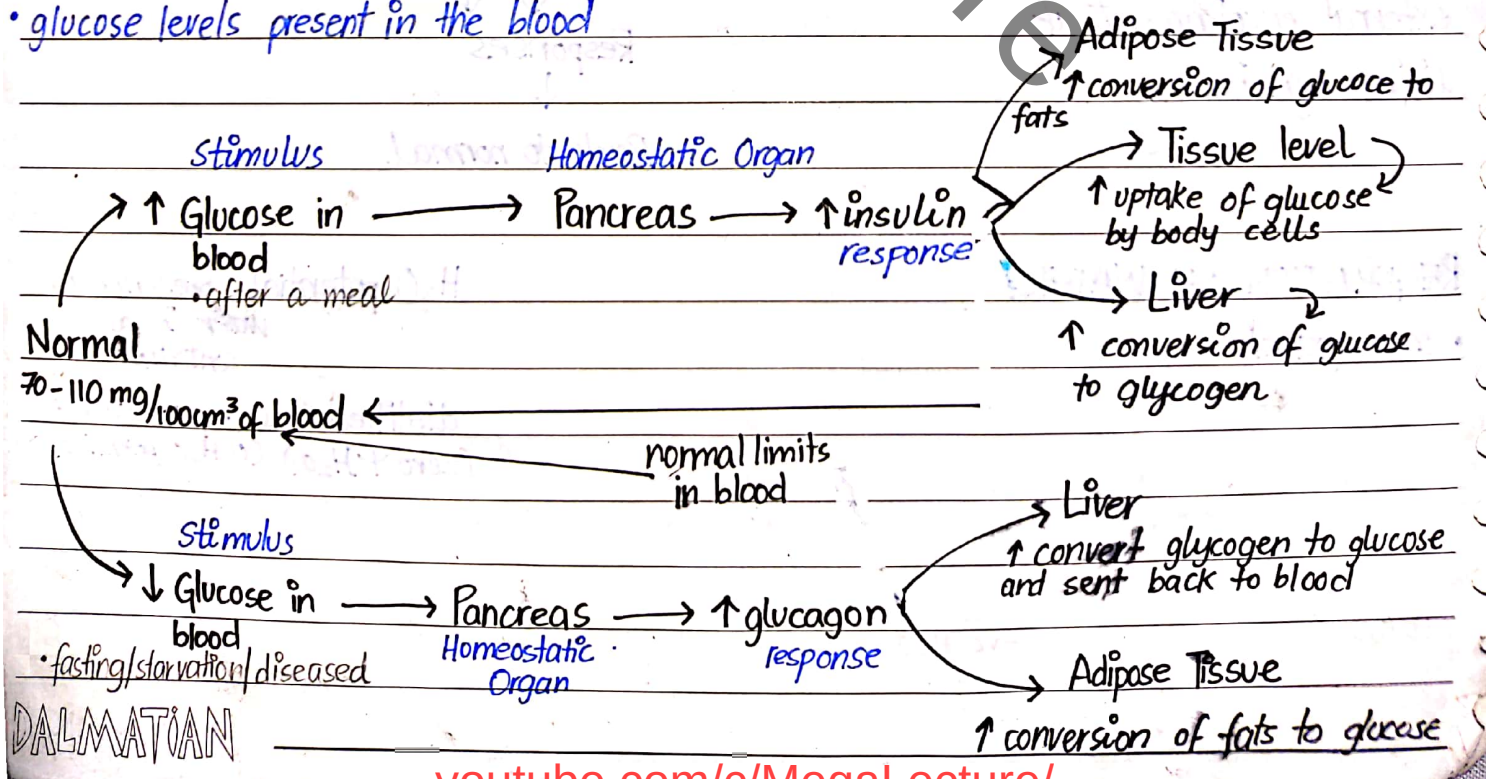
distilled H_2O: pure water (zero Ψ H_2O) (0 H_2O potential)

Date:



REGULATION OF GLUCOSE:

- glucose levels present in the blood



DALMATIAN

Date:

→ insulain and glucagon are antagonistic

MAMMALIAN SKIN:

→ epidermis
→ dermis

Epidermis:

→ comified layer - cell deposited with a protein called keratin (waterproof)
- avoids any entry of external microorganism (protective)
- they wither off after some time (regular intervals)

→ granular layer - living cells giving next/new cornified cells

→ malphigien layer - pigmented cells (malanine)
- giving colour to our skin (↑melanine : darker)
∴ melanine protects the inner body from ultra-violet rays (sunlight) which can cause cancerous conditions in the body

Dermis | Sub-

→ Edipose tissue - energy reserve
- insulating layer
- protective for sensitive organs

→ Sweat gland - sweat duct and sweat pores
- removal/excretion of sweat from the body
- urine + H_2O + ↓ salts ⇒ sweat
- evaporation of water takes away internal body heat into the environment (cooling effect)

→ Hair - hair pappalia adds up new cells after cell division
- intern increasing length of the hair
- hair follicle gives a passage to hair to move out

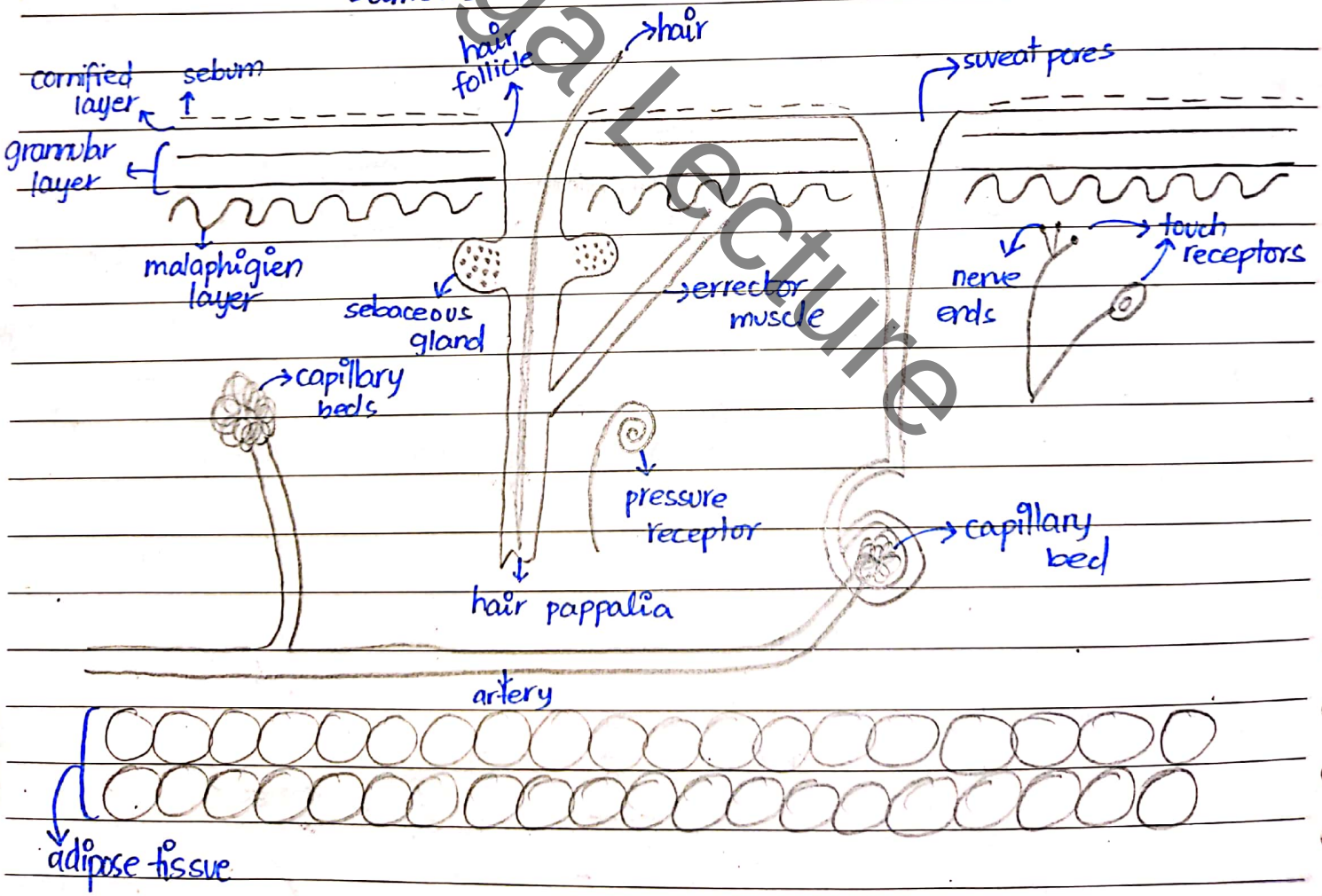
DALMATIAN

Date:

- the goose pimple is out growth of epidermis along erected hair
- erector muscles contraction results in erection of the hair

→ Sebaceous gland – meant to produce oily secretion ⇒ the sebum
- sebum acts as a waterproof layer, protection against micro-organisms

→ Receptor organs – nerve endings / touch receptors detect stimulus of touch and pain
- pressure receptors are sensitive to pressure as stimulus



*Capillaries can not constrict/dilate because of absence of muscles.

Date:

→ Blood Capillary network – response organ for regulation of temperature

→ = Vasodilation : • dilation is increase in diameter
• dilation of arteries which are leading towards skin
• ↑ heat loss to envoirnment

= Vasoconstriction :
• constriction of arteries moving to skin
• ↓ heat loss to envoirnment

3. REGULATION OF TEMPERATURES

i. Pikolotherms / Cold-Blooded animals
(animals regulate body temperature (35-40°C) by behaviour changes)
e.g// - fishes, amphibians, reptiles
• go to sunlight • come to shade • hiberration to avoid the extreme climate

ii. Homeotherms / Warm-blooded animals
(animals regulating temperature (35-40°C) by homeostasis)
e.g// - all birds, all mammals