

# Regulatory Mechanisms in Animals



A new Melbourne Cup  
Hat fashion??

Why is she doing this?

# Animals need to respond to changes in their external and internal environment.

*What are some responses?*



Temperature



Water and solute



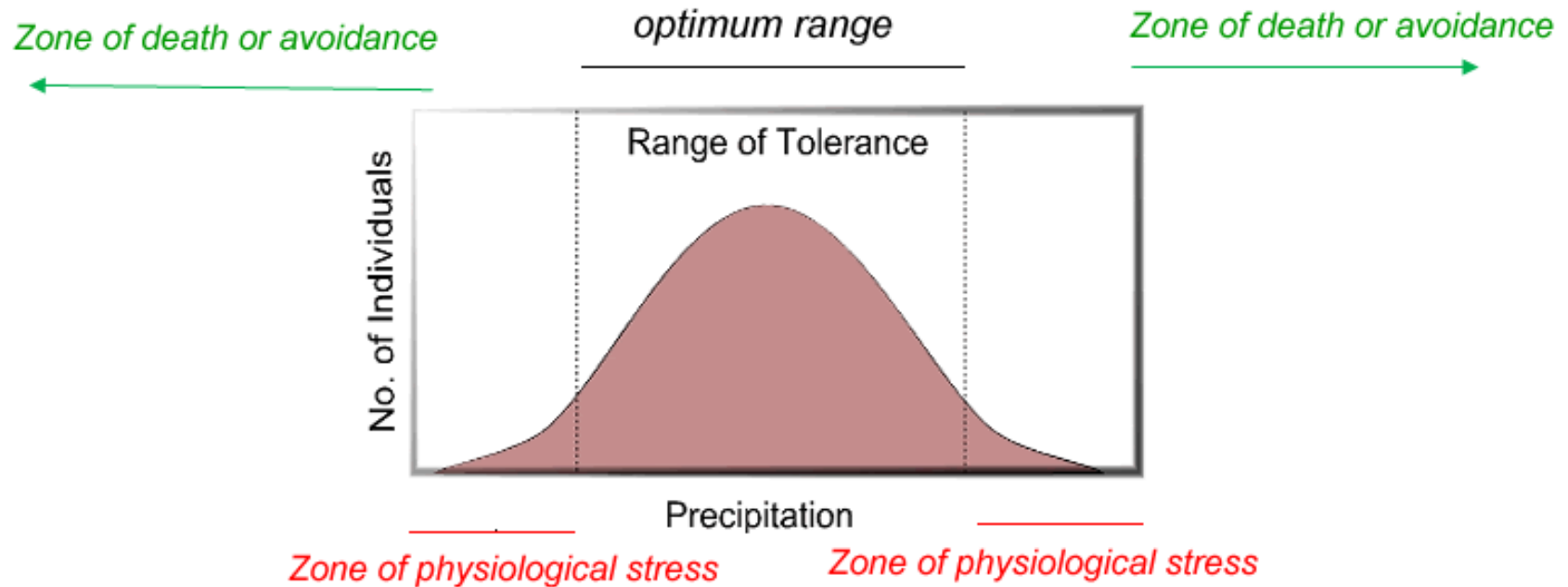
Glucose etc



Oxygen, CO<sub>2</sub>

These responses ensure that various internal factors stay within ***tolerance limits***.

**Tolerance range** – the range a population thrives in an optimal range of abiotic factors. Beyond this range, one finds less and less numbers of these organisms. Often the range is shown for each factor, see diagram below.



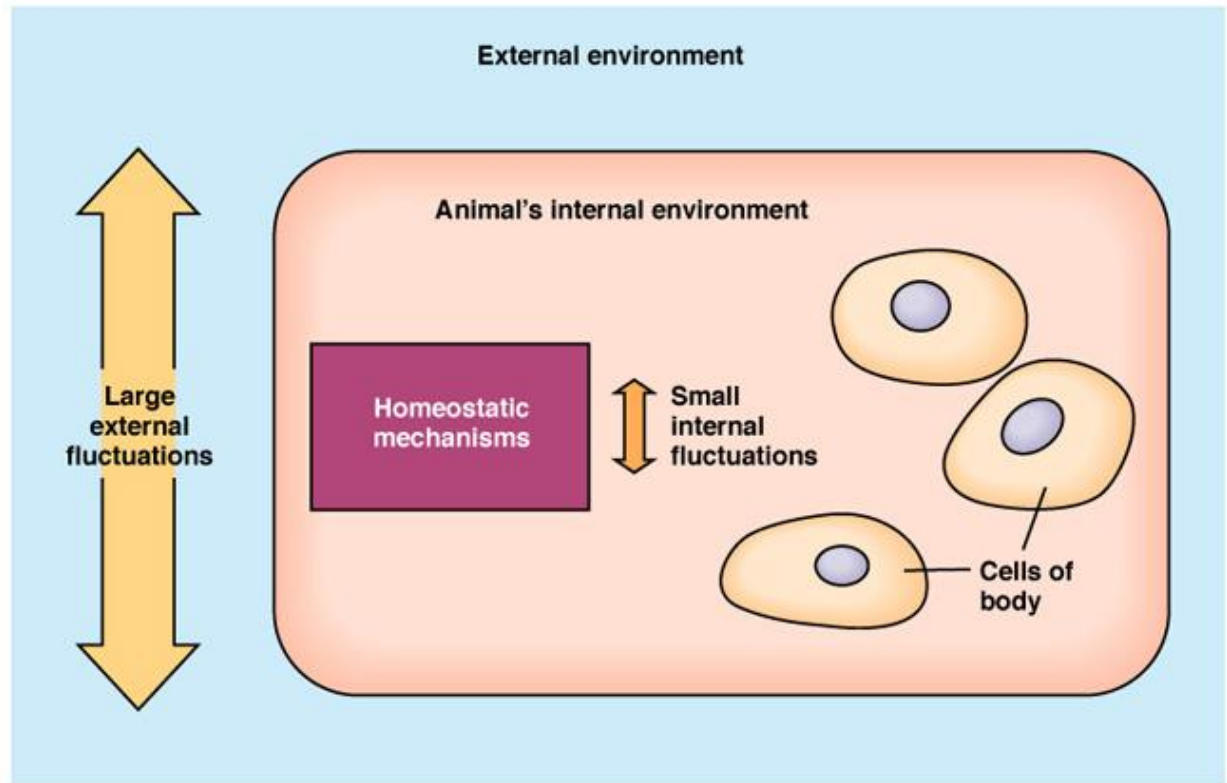
*Biozone, page 243, Habitat*

**Limiting Factor** – one factor that affects the population and limits its growth. Can be too much or too little. E.g. The limiting factor for a plant population near a chemical factory may be the soil pH.

# Homeostasis

Homeostasis is the maintenance of a constant internal environment..

That is the tissue fluid around the cells needs to remain in a relatively constant state.



# What factors are under homeostatic control?

- Body Temperature (Thermoregulation)
- Water level in blood (Water balance)
- Blood glucose concentration
- Oxygen and carbon dioxide concentration in blood
- Concentrations of ions ie sodium, chloride, calcium....

*Animals have physiological, behavioural and structural adaptations to ensure their core temperature remains within their upper and lower tolerance limits.*

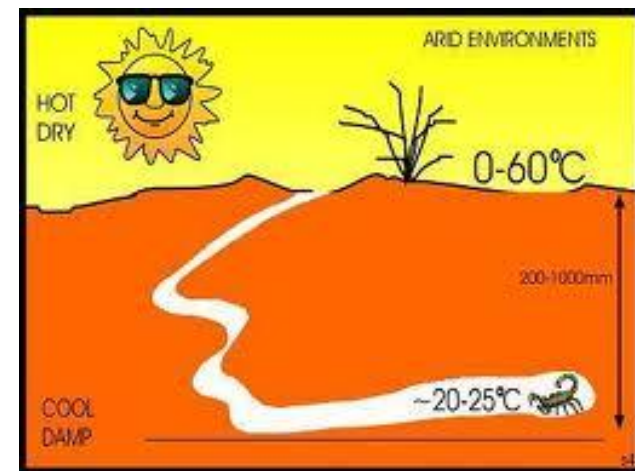
Examples.....



# Thermoregulation

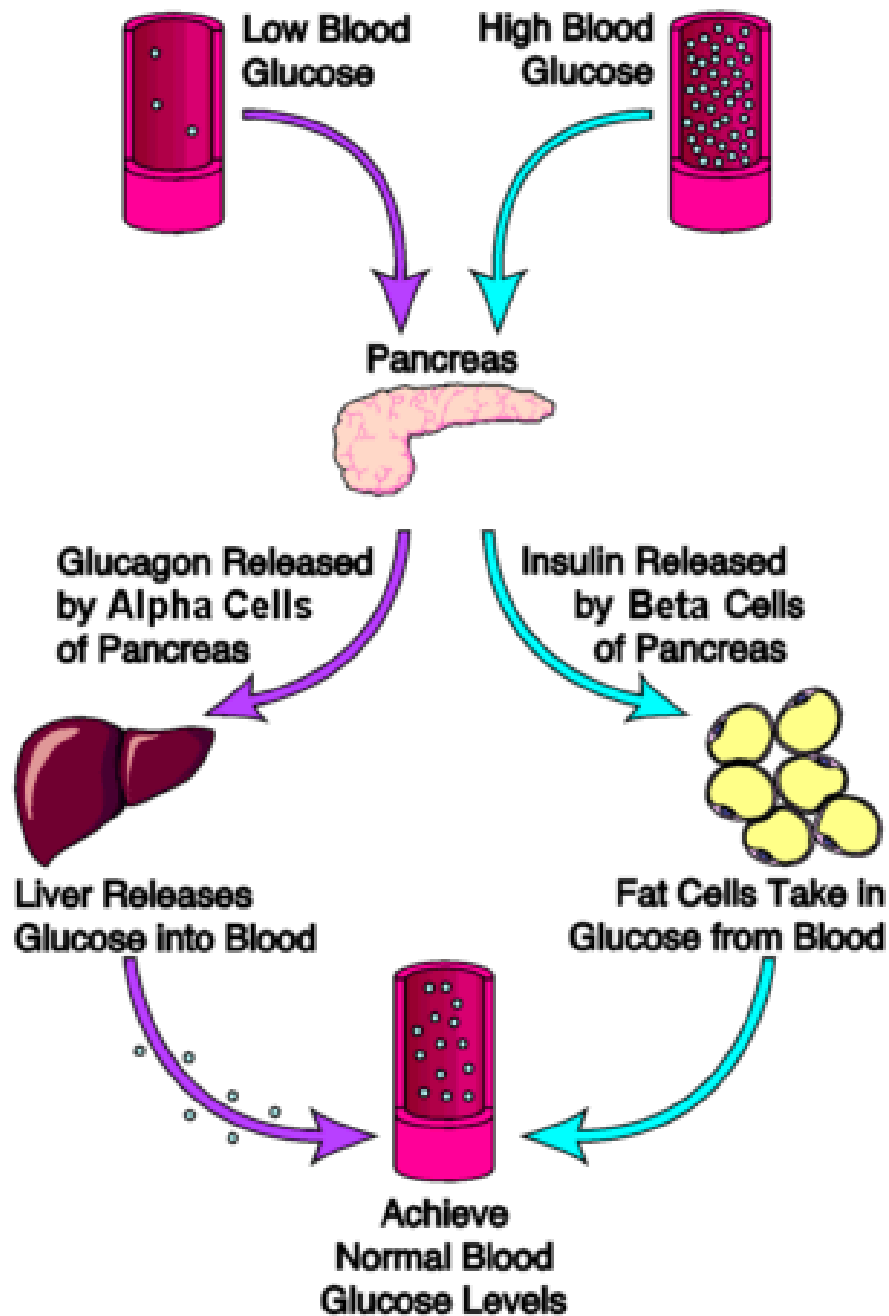


# Water balance





# Blood Glucose



# Oxygen and carbon dioxide concentration in blood

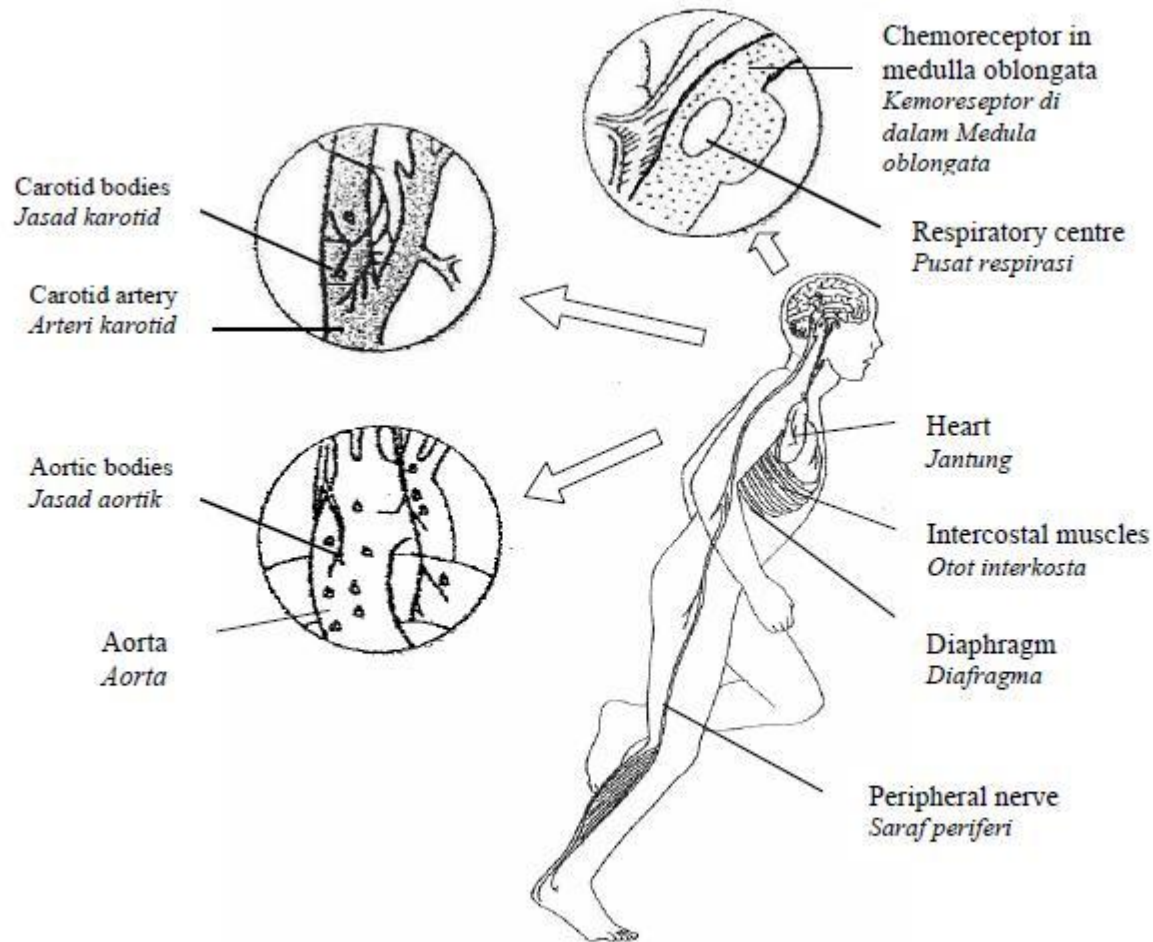
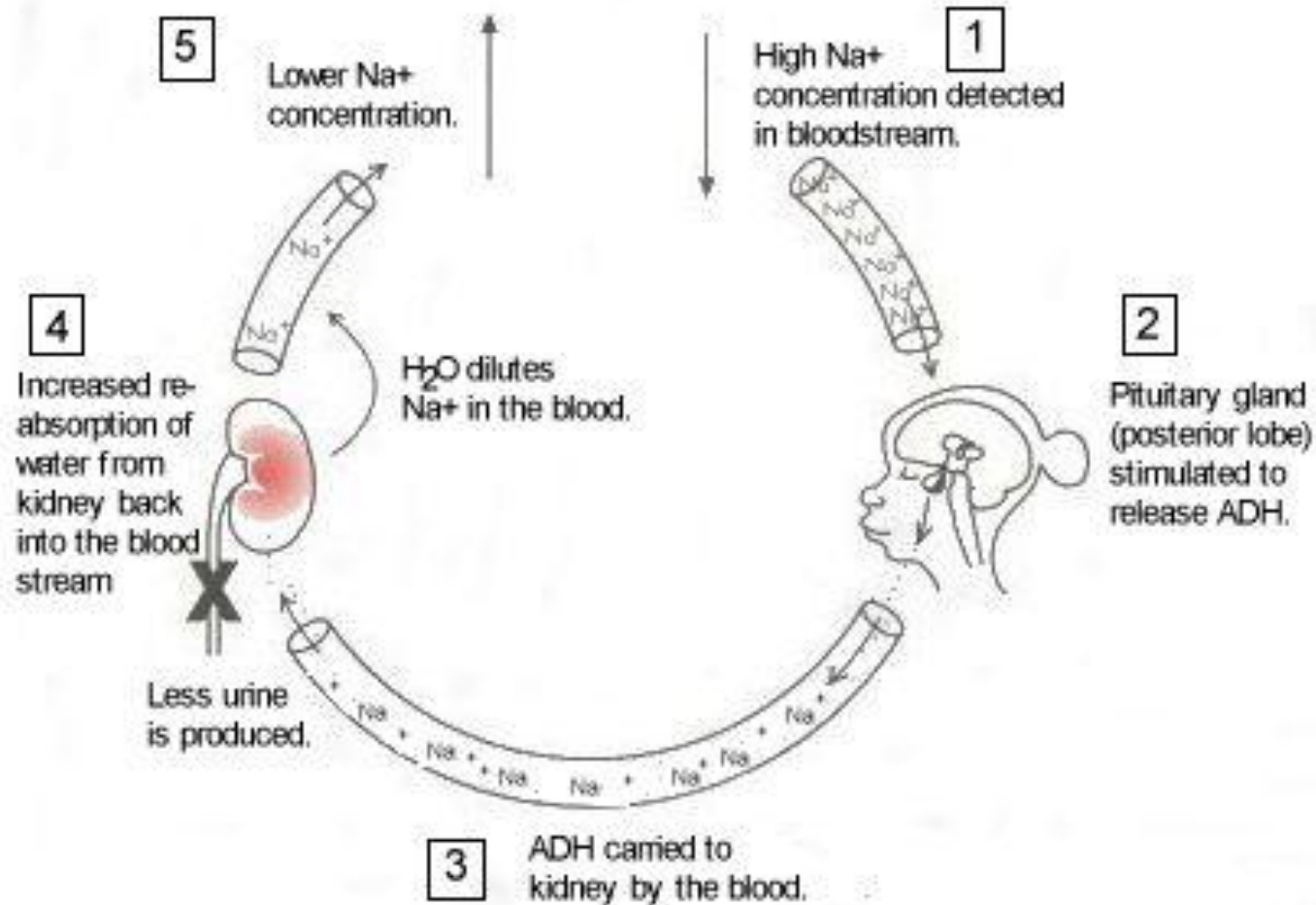


Diagram 6.1  
Rajah 6.1

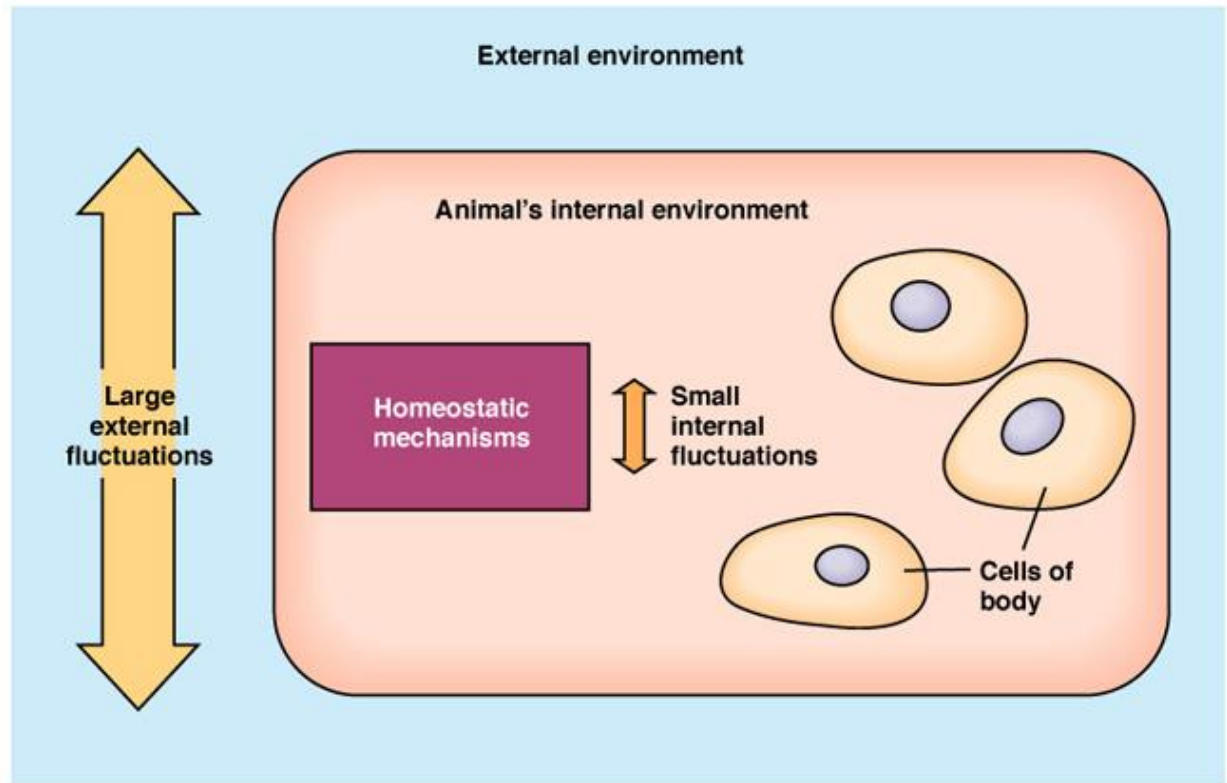
# Concentrations of ions ie sodium, chloride, calcium....



# Homeostasis

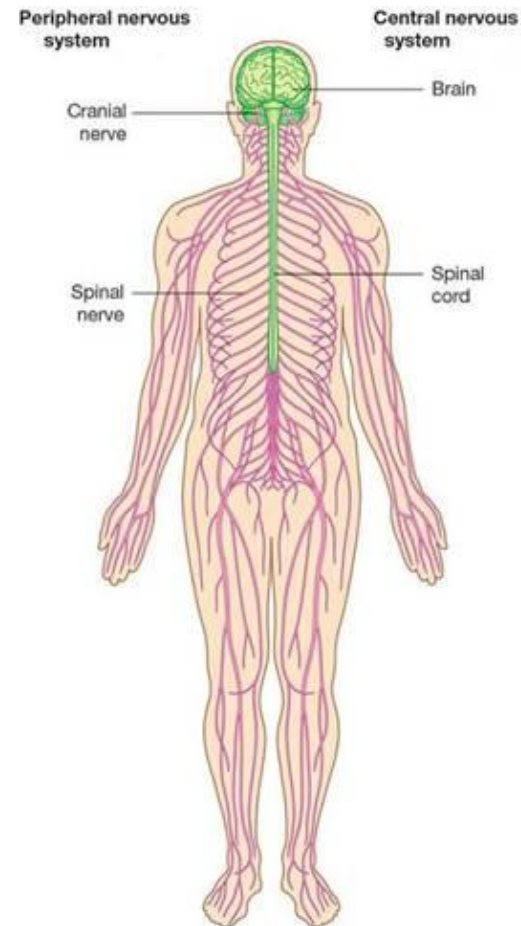
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# Homeostasis is maintained by:

- The Endocrine System
- The nervous system





# Routine Regulation- Regulatory Mechanisms in Animals

Biozone Worksheets that should be completed pp 255-262  
(extra 2630)

Henemann text

- Ch 15 pp 276-296 Q 1- 15
- Extension and more depth Ch 16 pp 298-316 Q 1- 15