

Describe some trends and patterns you detected in your investigation into the behavioural, structural and physiological adaptations of endotherms that maintain homeostasis for a named environmental situation. (6 marks)

Within the investigation involving the fluctuations in temperature, endotherms adopt such features that adapt to their external environment through their behaviour, structure and physical morphology. An endotherm is an organism that maintains its internal environment from the onset of a series of reactions to be separate from its external environment. These processes are ultimately the homeostatic response whereby its fundamental objective is to achieve a stationary, optimum level, this is enhanced through the featural behavioural, structural and physiological components of an organism. The wombat lives in the nocturnal regions of the environment and curls in a ball to maintain body warmth. Through this behavioural adaptation, the internal temperature averages around 32-36.5°C. Additionally, the structure of wombats is particularly small relative to other mammalian animals, wombats are small and have short legs, they have a rounded body which as a result decreases their surface area to volume ratio to thus maintain warmth. In relation to how physiological adaptations allow for the maintenance of homeostasis; a polar bear also lives in colder regions and will hibernate within the winter season to slow down the metabolic processes within their bodies. This is an adaptation of the enzymatic, bodily processes to resultantly decrease the rate of reaction and therefore allow for the survival of the bear.