

Define the following terms:

Heat Shock Protein

Heat Shock Factor

HVA

CTMax

UT₅₀

Vitrification

Conduction

Convection

Thermal hysteresis

Q₁₀

Facultative endotherm

Regional endotherm

Fill in the blank

At 10 C° the rate of a reaction was 6 and at 16 C° that same reaction rate increased to 20, what is the Q₁₀ for this reaction? _____

A cell going through homeoviscous adaptation will change its ratio of _____ to _____ in an attempt to regulate _____.

Water ice formation requires sufficiently low temperatures, water and _____.

True/False – most radiative heat exchange occurs in the visible spectrum.

Animals that are freeze tolerant do not produce _____ that are typically produced by freeze intolerant animals that supercool tissues.

A psychrometer measures humidity by contrasting the _____ of a wet and dry bulb moving through the air.

Evaporative cooling is only effective when the atmosphere is relatively _____, and the skin is _____.

Describe the short term (seconds), medium term (acclimation), and long term (evolutionary) responses to increased temperature observed on a cellular scale.

How do ectothermic organisms run a fever?

How might one determine the thermal optima of an organism?

For each of the following, list one organism that matches the described strategy. Which of the strategies is the most rare and why?

Homeothermic endotherm

Homeothermic ectotherm

Poikilothermic endotherm

Poikilothermic ectotherm

What is a tolerance polygon? Draw a tolerance polygon for a steno and eurythermal organism and explain the ecological significance of the difference.

What is the difference between the zone of thermal resistance and zone of thermal tolerance? Similarly, what is the difference between critical thermal maxima and upper incipient temperature?

Compare and contrast the advantages and disadvantages of endothermy and ectothermy. How did endothermy evolve?
