

2023 Bi H1 Q13

Section: Metabolism and Survival

Topic: Metabolism in Conformers and Regulators

Question Summary

The question asks which responses occur in a mammal when its body temperature decreases.

Worked Solution

When body temperature drops, mammals must conserve heat and generate more heat to restore normal temperature. They do this by:

- Vasoconstriction — blood vessels in the skin narrow, reducing blood flow to the surface and minimising heat loss.
- Increased metabolic rate — cells respire faster, producing more heat internally.

■ Answer: C — Vasoconstriction and an increase in metabolic rate

Revision Tips

- Conformers rely on the external environment to control body temperature (e.g. reptiles).
- Regulators (like mammals) maintain a constant internal

temperature using physiological mechanisms.

- When temperature drops: vasoconstriction, shivering, increased metabolism.
- When temperature rises: vasodilation, sweating, decreased metabolism.