Thermoregulation Homework

Please practice these exam style questions, based on what we learnt Thursday 5th November

Question 1 (Multiple Choice / 1 Mark)

Which organ in the human body contains the thermoregulatory centre that monitors and controls core body temperature?

- **A** Heart
- **B** Brain
- **C** Liver
- **D** Lungs

Question 2 (Fill in the Blanks / 3 Marks)

When a person is too hot, the body uses different mechanisms to cool down.

Use words from the box to complete the sentences below. Each word can be used once, more than once, or not at all.

blood vessels evaporate shiver contract sweat expand

When core temperature rises, the skin produces **(a)** _____.

This liquid must **(b)** _____ from the surface of the skin to transfer heat energy away into the environment.

At the same time, **(c)** _____ near the surface of the skin widen to allow more blood flow.

Question 3 (Data / 3 Marks)

A student measured their skin temperature before and after going for a 10-minute run.

- **Skin temperature before the run:** 33.2°C
- **Skin temperature after the run:** 35.8°C

(a) Calculate the increase in skin temperature. [1 mark]

(b) State the optimum internal core temperature for the human body. [1 mark]

(c) Name the structures in the skin that detect a change in environmental temperature. [1 mark]

Question 4 (Structured Short Answer / 3 Marks)

When a person enters a cold room, their body reacts to prevent hypothermia.

(a) One response is that the body begins to shiver. State what happens to the muscles during shivering.
[1 mark]

(b) Shivering requires energy. Name the chemical process that happens in muscle cells to release this heat energy. [1 mark]

(c) Name one other response the body has to being too cold, apart from shivering. [1 mark]

Question 5 (Extended Writing / 6 Marks)

An athlete is running a marathon on a very hot day. Their body temperature begins to rise above normal.

Describe how the athlete's body detects this increase in temperature and explain how the body uses sweat and blood flow to bring their temperature back down to normal.
