**Part B: In Class Validation**

To complete Part B students are allowed the task sheet and the report they have completed for Part A.

**Complete the remainder of the scientific report under test conditions.**

**Analysis and evaluation** (15 marks)

* describe the trend and/or pattern in your data
* state how your data relates to your hypothesis
* use your knowledge and understanding to explain the trend and/or pattern of your results
* comment on the reliability and accuracy of the data collected
* list **two** limitations in the data collection strategy that may have affected the reliability of your data and comment on how they would have affected it
* list **two** improvements you could make to the data collection strategy to improve your investigation

**Conclusion**  (2 marks)

* summarise your findings and comment on the reliability and validity of the outcome of the investigation

The following questions relate to the Investigation you conducted for task 4.

1. State the hypothesis for your experiment. (2 marks)

Independent and dependent variable relationship (1)

Statement (1)

2 Did your experiment have a control group? Explain the role of a control group?

(2 marks)

Identify correctly whether or not they had a control group (1)

Act as a comparison to experimental group checks validity of experiment (1)

3 Do you consider your results to be reliable? What evidence did you use to make this decision? Discuss one way you could improve the reliability of your investigation?

Refers to sample size or repeat trials (1)

Results in trial are similar/ same pattern (1)

Increase sample size or repeat more trials (1)

(3 marks)

4 State 3 variables you controlled during the experiment. (3 marks)

One mark per specific variable (1)

eg Ambient temperature maintained 40 O C ?

No marks for general/nonspecific statements eg same location



Above is a procedure for a temperature investigation.

5 Why did the Scientists make sure all subjects were not suffering from any medical conditions? (2 marks)

1 Experiment not controlled another factor may increase body temperature (1)

2 Whilst the body is expending energy to cool or heat the subject during the experiment less energy is available to body to deal with medical condition. May result in the subject taking longer to heal. (1)

6 Use an annotated diagram to explain the physiological responses that occurred when you exposed your subjects to high temperatures. (10 marks)

Stimulus – Increase in body temp (no marks as implied)

Receptors thermoreceptors- hypothalamus and skin (1)

Modulator hypothalamus (1)

Effector- blood vessels (1)

Response

Smooth muscles relax within blood vessels relax. (1)

Blood vessels close to skin dilate – more blood flows close to surface of skin (1)

Increase heat lost via radiation and conduction (1)

And

Effector Sweat Glands via sympathetic NS (1)

Response Increase Sweating

Sweat glands produce mainly water (1)

Sweat evaporates from skin absorbing latent heat that cools skin and blood flowing below surface of skin (1)

Feedback Decreased Temperature (1)