**Human Biology 2017**

Year 11

Investigation Validation Test

Heart Rate

Student Name: \_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- | --- | --- |
| TOTAL |  | /30 |  |

You may refer to your Laboratory report at any time during this investigation test.

Upon completion of the test you must hand in this booklet as well as your Laboratory report.

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| **GENERAL INSTRUCTIONS**   * Time Allowed: 40 minutes * Write using a black or blue pen * You may use pencil to draw diagrams * Attempt ALL questions * Scientific calculators may be used |  |

HEART RATE INVESTIGATION TEST

1. Write a hypothesis for your investigation. (2 marks)

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2. For your investigation give; (3 marks)

The independent variable\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The dependent variable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3 controlled variables \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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3. What is a control? Why is it necessary?

(2 marks) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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4. What is the control in your experiment?

(1 mark)

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5. Describe two things in your investigation that you think might have made it invalid.

Explain how you could improve each of these. (4 marks)

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6. Do you think your experiment was reliable? Explain. (1 mark)

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7. List two ways you could make it more reliable? (2 marks)

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8. Name the title and authors of previous research on your topic? (4 mark)

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9. Describe your results and use correct scientific terminology to explain why you think these results occurred.

(5 marks)

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Question 10 and 11 refer to the information in the table below.

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| Student | Heart Rate (BPM) | | | | |
| 1 min of Exercise | 2 min of Exercise | 3 min of Exercise | 4 min of Exercise | 5 min of Exercise |
| 1 | 88 | 98 | 103 | 110 | 125 |
| 2 | 92 | 96 | 105 | 115 | 123 |
| 3 | 87 | 100 | 109 | 112 | 123 |
| 4 | 93 | 109 | 114 | 120 | 130 |
| 5 | 90 | 101 | 111 | 119 | 122 |
| 6 | 93 | 108 | 116 | 124 | 135 |
| 7 | 87 | 99 | 104 | 109 | 120 |
| 8 | 91 | 106 | 110 | 116 | 127 |
| 9 | 91 | 107 | 112 | 119 | 128 |
| 10 | 88 | 94 | 102 | 110 | 114 |
| Average | 90 | 101.8 | 108.6 | 115.4 | 124.7 |

10. Draw a graph on the paper provided showing the relationship between the average heart rate and exercise duration. (5 marks)

11. What conclusion could you draw from the graph?

(1 mark)

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