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| Total marks | 15 |
| Time allowed | Approximately 25 minutes |
| Instructions | Answer ALL questions. Write answers in the spaces provided. |

Question 1

The student performed 3 minutes of stepping exercise, then rested and recorded recovery. Heart rate was measured every minute.

| Time | Condition | Heart rate (bpm) | Breathing rate (breaths/min) |
|--------|-----------------|------------------|------------------------------|
| 0 min | Rest | 68 | 15 |
| 3 min | End of exercise | 142 | 28 |
| 4 min | Recovery | 118 | 24 |
| 6 min | Recovery | 89 | 19 |
| 8 min | Recovery | 75 | 17 |
| 10 min | Recovery | 68 | 15 |

A student measures their heart rate before, during and after exercise. The table shows the results.

[0 marks]

Question 2

Describe the effect of exercise on heart rate, using data from the table to support your answer.

[3 marks]

Question 3

Explain why heart rate increases during exercise.

[3 marks]

Question 4

The student's breathing rate remained elevated for several minutes after exercise stopped. Explain why.

[3 marks]

Question 5

The student repeats the experiment the following day but their recovery time is much shorter. Suggest ONE reason why.

[1 mark]

Question 6

Suggest TWO improvements the student could make to this investigation to make the results more reliable.

[2 marks]

END OF QUESTIONS — Total: 12 marks