

- 3 (a) Ten students carry out an investigation to determine the speed at which a nerve impulse travels.
- they form a circle holding hands
  - the first student starts a timer with his left hand
  - using his right hand, he squeezes the left hand of the second student
  - this continues until student number 10 has his left hand squeezed by student number 9
  - student number 10 stops the timer with his right hand
  - the distance the nerve impulse travels in each student is measured and the results recorded in the table.

Student number	1	2	3	4	5	6	7	8	9	10
Distance travelled by nerve impulse in each student in cm	198	220	175	189	207	190	167	168	176	210

- (i) Suggest how the distance travelled by the nerve impulse in each student is measured.

(3)

- (ii) Calculate the total distance travelled by the nerve impulse through all ten students.

(1)

distance travelled = ..... cm



- (iii) The time recorded on the timer for the nerve impulse to travel through the whole circle of students is 2.5 s.

Calculate the speed at which the nerve impulse travels.

(3)

speed = ..... cm/s

- (iv) Suggest three reasons why the results from this investigation may not be accurate.

(3)

1 .....

2 .....

3 .....

- (b) Explain how alcohol affects the speed of nerve impulses.

(2)

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(Total for Question 3 = 12 marks)

