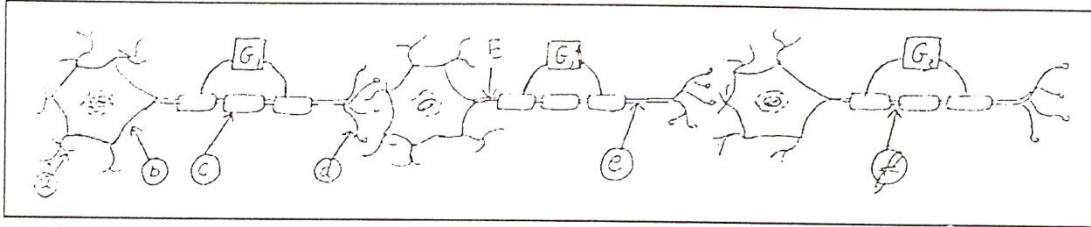


**Exercise I:**

The following document represents three neurons:



1 – Label the letters a, b, c, d, e, and f.

2 – Knowing that many stimulations of increasing intensities are applied at the point E, precise the galvanometer(s) that indicate(s) a response. Justify your answer.

**Exercise II:**

Three stimulations of increasing intensities ( $I_1$ , successively applied on the plasma membrane neuron.

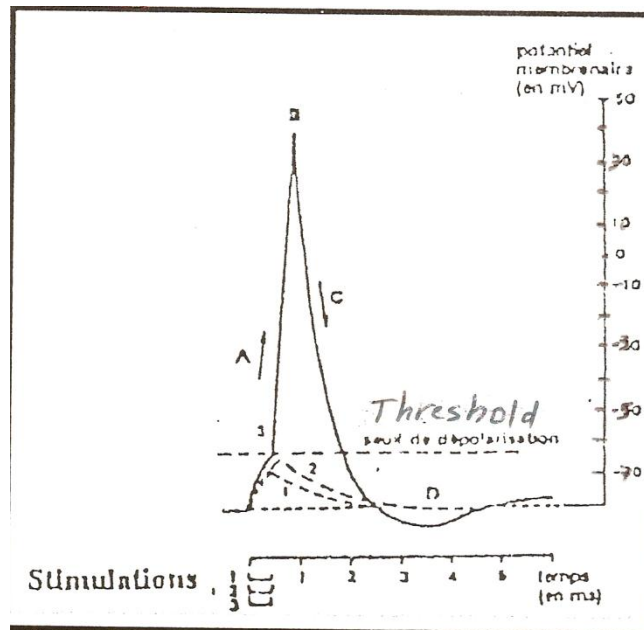
The adjacent document represents the tracing on the screen of the oscilloscope following the stimulations ( $I_1, I_2, I_3$ ).

a – Which of the used intensities of stimulations effective? Justify your answer.

b – Indicate the threshold value at which the depolarization took place.

c – Supposing we increase the intensity of from  $I_4$  to  $I_3$ , does the amplitude of action vary? Justify your answer.

d – What do the phases A and C on the tracing to? Give an explanation for each.



$I_2, I_3$  are of a recorded are stimulation potential correspond

**Exercise III:**

We are intended to study some of the factors that affect the speed of propagation of the nerve impulse along a myelinated fiber. Many experiments are performed so that the results are mentioned in the following table :

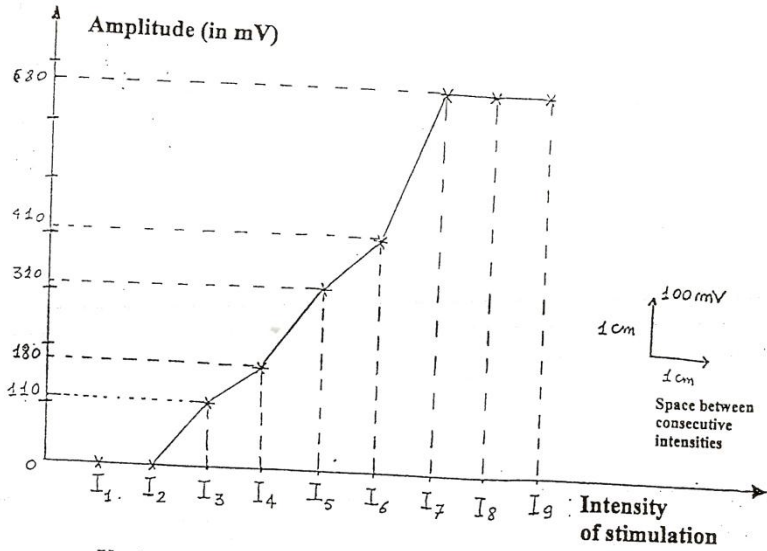
Diameter	Temperature	Speed
2 $\mu$	37 °c	20 m/sec
5 $\mu$	37 °c	32 m/sec
2 $\mu$	20 °c	4 m/sec

Analyze the

document, and deduce the factors affecting the speed of propagation of the nerve impulse.

**Exercise IV:**

On a nerve structure "X", a series of stimulations of increasing intensities are applied. The amplitude of responses is represented in the following graphic:



Variation of amplitudes of the response done by the nerve in function of the intensity of stimulation

- 1 – Translate the graphic into a table.
- 2 – How can you classify the intensities I<sub>3</sub> and I<sub>7</sub>?
- 3 – Interpret the graphic. And deduce the nature of the structure X.