1. Nov/2018/Paper_41/No.8

(a) Outline the roles of sensory receptor cells in the mammalian nervous system.

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..... [3]

(b) Fig. 8.1 shows the changes in potential difference (p.d.) across the membrane of a receptor cell over a period of time. The membrane was stimulated at time **A** and at time **B** with stimuli of different intensities.

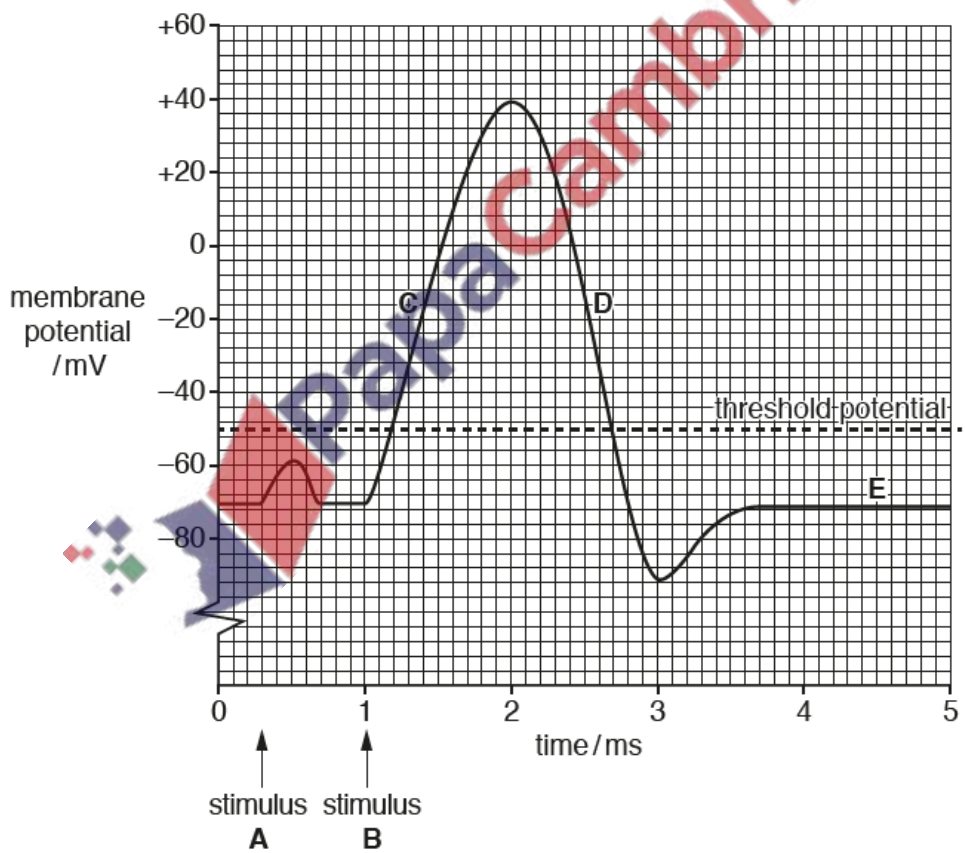

Fig. 8.1

(i) State which of the letters **C**, **D** and **E** on Fig. 8.1 correspond to each of these events. You may use each of the letters **C**, **D** or **E** once, more than once or not at all.

The Na^+/K^+ pump is operating .....

The voltage-gated Na^+ channels are open .....

The voltage-gated K^+ channels are open .....

[3]

(ii) Explain why stimulus **A** did not result in an action potential being produced whereas stimulus **B** did.

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..... [2]

(iii) Describe the importance of the refractory period in the transmission of action potentials.

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(iv) Describe how action potentials are transmitted along a myelinated axon.

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..... [4]

[Total: 14]

2. Nov/2018/Paper_43/No.8

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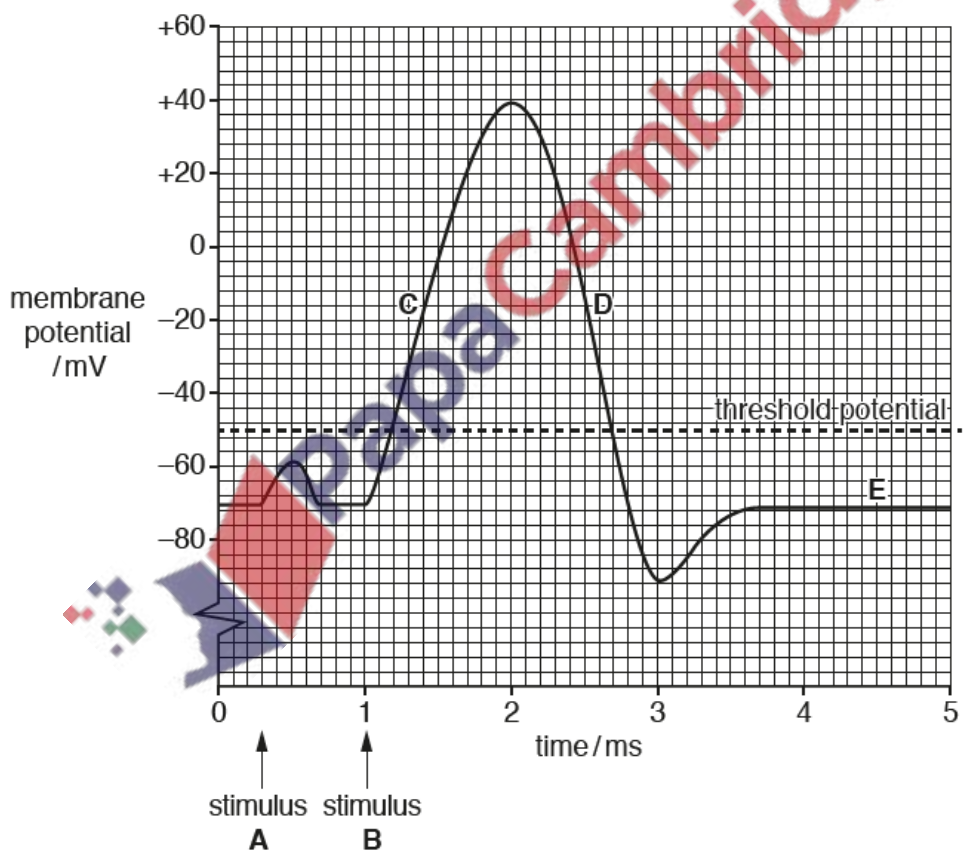

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