

A Level Biology B

H422/02 Scientific literacy in biology

Question Set 18

1. (a) (i) Fig. 5 shows a vertical section through the human eye.

The regions labelled **C**, **D** and **E** are affected by degenerative diseases of the eye associated with ageing.

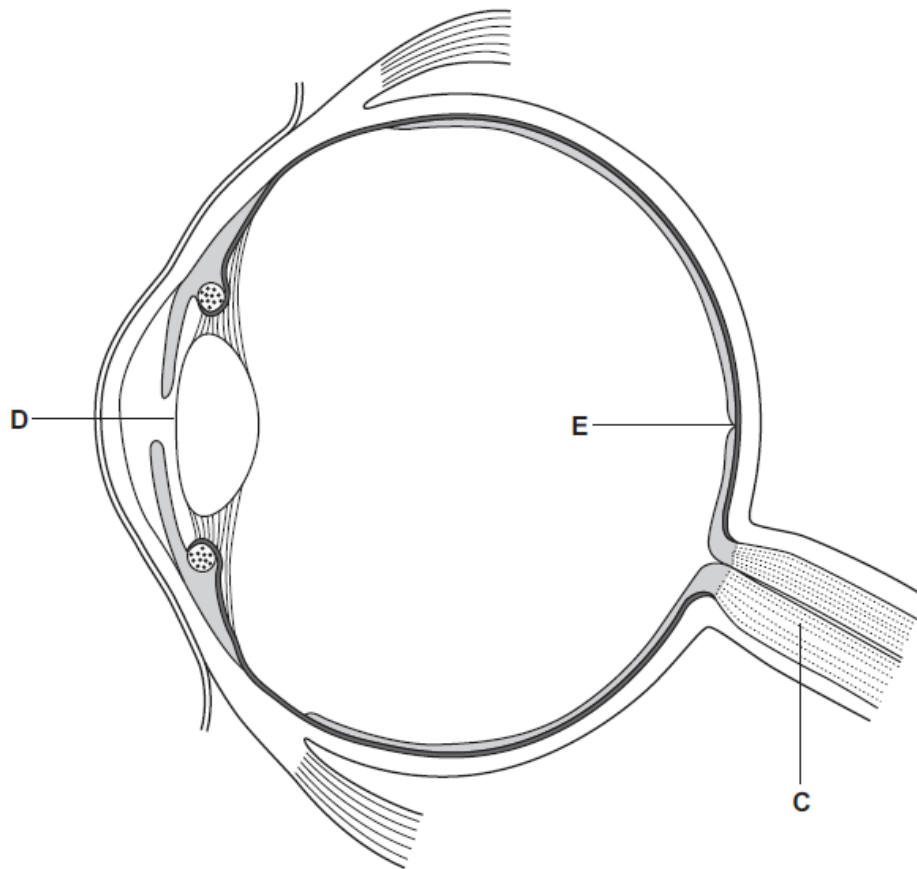


Fig. 5

For regions **C** and **D** in Fig. 5, name the degenerative disease **and** explain why vision would be affected.

[4]

(ii) Ranibizumab is a monoclonal antibody-based drug that inhibits the growth of new blood vessels.

Suggest how ranibizumab would be effective in treating a degenerative disease that affects the region labelled **E** in Fig. 5.

[2]

(b) (i) The retina contains light-sensitive photoreceptor cells.

Explain why photoreceptor cells in the retina are described as transducers.

[1]

- (b) (ii) Rod cells undergo various changes when they are stimulated by light.

Complete the following table by writing 'Rest' or 'Light' in the space provided to indicate whether the description refers to a rod cell at rest or when stimulated by light.

The first row has been completed for you.

Process in rod cell	Rest or Light
Rhodopsin is broken down to form opsin and <i>trans</i> -retinal	Light
Rod cell membrane is hyperpolarised	
Neurotransmitter is released by exocytosis from the rod cell into the synaptic cleft	
Sodium ion channels open	

[2]

- (c) Red-green colour blindness is a sex-linked inherited disorder that affects mostly males.

Suggest why red-green colour blindness affects mostly males.

[2]

Total Marks for Question Set 18: 11

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