

AS Level Biology A
H020/02 Depth in biology

Question Set 1

1. Fig. 1.1 shows a student's diagrams of two plant cells. Each cell was observed using a different type of microscope. The cells are not drawn to scale.

(a)

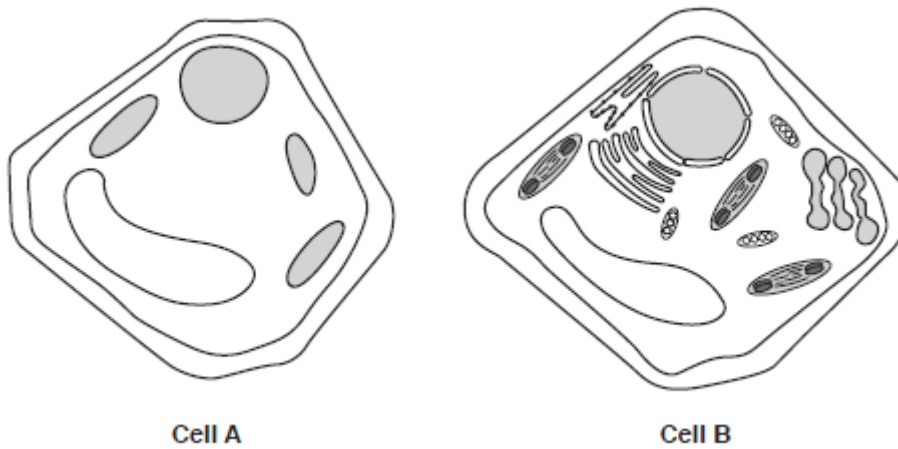


Fig 1.1

(i) **Cell B** in Fig. 1.1 was observed using an electron microscope.

Give one piece of evidence from Fig. 1.1 that supports this.

[1]

(ii) Give one way that an image produced by a laser scanning confocal microscope differs from that produced by an electron microscope.

[1]

(b) Meiosis is a type of nuclear division.

Fig. 1.2 shows a photomicrograph of plant cells undergoing meiosis.

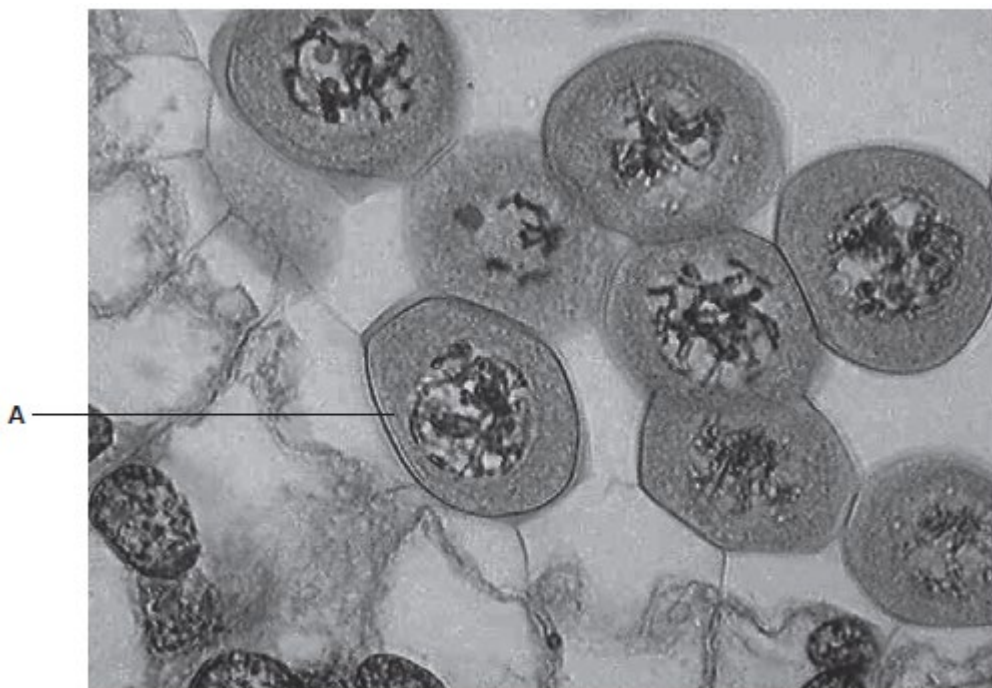


Fig. 1.2

(i) Identify the stage of meiosis 1 shown in the cell labelled **A**. [1]

(ii) Based only on your observations of Fig.1.2, state **two** reasons for your answer in **(b)(i)**. [2]

(iii) Another stage of meiosis is metaphase 1.

Explain how the organisation of homologous chromosomes during metaphase 1 increases genetic variation. [3]

(c) The use of stem cells is being evaluated for the treatment of certain human diseases.

Name **two** potential sources of human stem cells and for **one** source, describe an ethical issue associated with the use of stem cells. [4]

Total Marks for Question Set 1: 12

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