2 *Exserohilum turcicum* is a fungal pathogen. The growth of the mycelium of the fungus damages the leaves of maize plants, *Zea mays*. Leaf damage reduces crop yield.

(a) (i) Complete Table 2.1 to show **one** structural difference and **one** functional difference between *E. turcicum* and *Z. mays*.

Table 2.1

	E. turcicum	***Z. mays***
structural difference		
functional difference		

[2]

(ii) Describe the principles by which organisms such as *E. turcicum* and *Z. mays* are classified in the taxonomic hierarchy.

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..... [4]

(b) Two inbred varieties of maize, SKV50 and CML153, were crossed. The resulting F1 hybrids were self-crossed to produce F2 offspring. The F2 plants were grown, and the percentage area of leaf damage caused by *E. turcicum* was measured.

Fig. 2.1 shows the results for the F2 generation. The arrows show the mean percentage area of leaf damage for the two parent varieties.

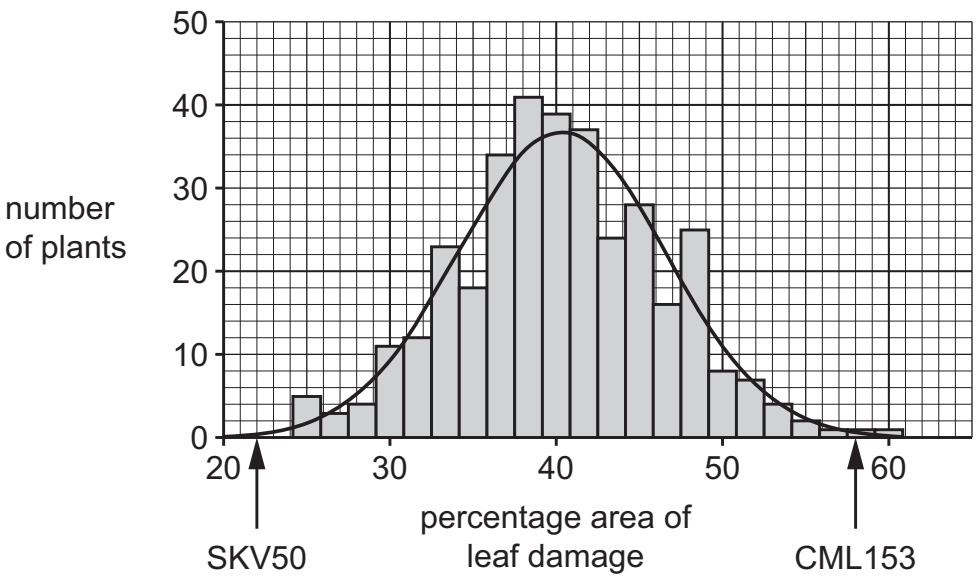

Fig. 2.1

(i) Explain how Fig. 2.1 can be used to determine which parent maize variety shows the greatest resistance to infection by *E. turcicum*.

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..... [2]

(ii) State the name of the type of variation shown by the maize F2 generation in Fig. 2.1.

..... [1]

(iii) Explain the **genetic** basis of the type of variation shown by the maize F2 generation.

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..... [4]

[Total: 13]