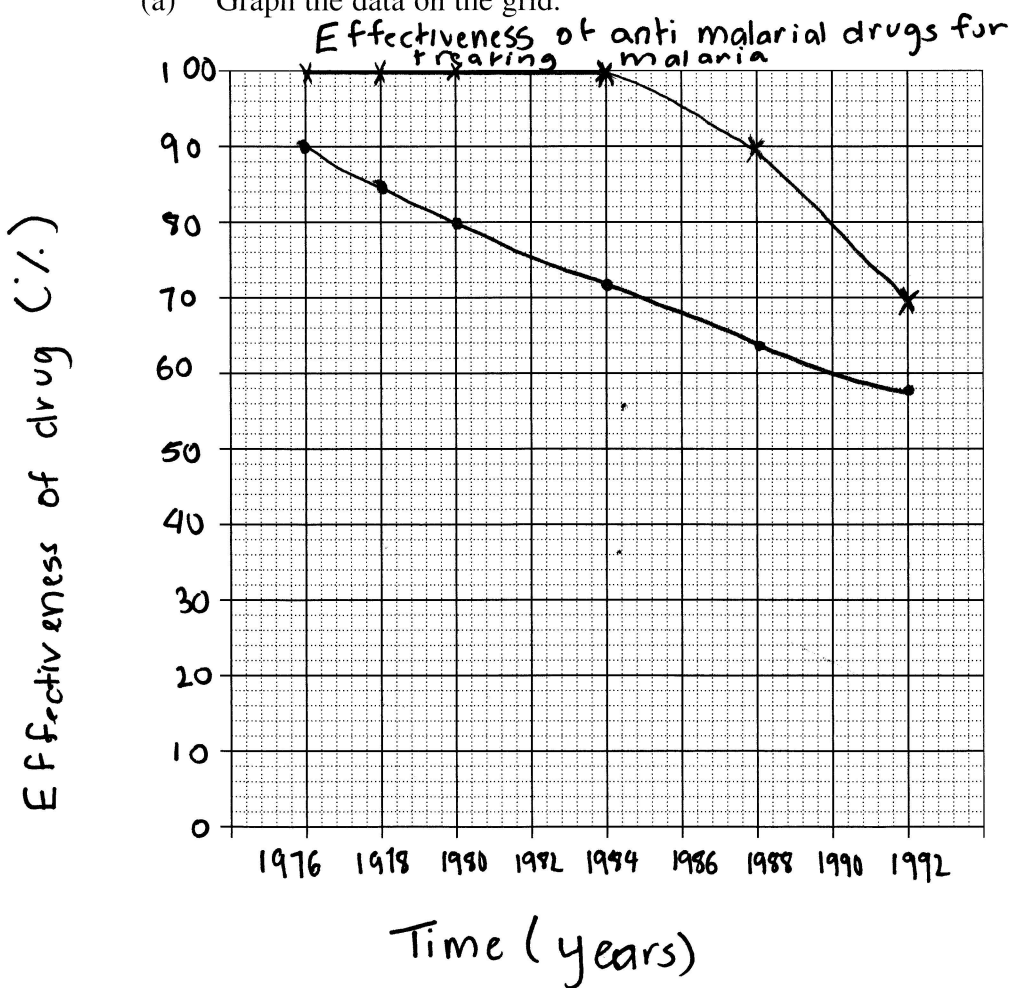


Question 22 (6 marks)

The following data were recorded about the effectiveness of antimalarial drugs for treating malaria.

Year	Effectiveness of drug (%)	
	Mefloquine	Quinine
1976	100	90
1978	100	85
1980	100	80
1984	100	72
1988	90	64
1992	70	58

(a) Graph the data on the grid.



3

Key

x-x-x Mefloquine

•-•-• Quinine

Question 22 continues on page 11

Question 22 (continued)

- (b) Use these data to explain the impact of human processes on biodiversity.

3

It can be seen in the use of both drugs that overtime, there is a decrease in the effectiveness of the drug. This can be explained by Darwin's theory of natural selection. Suggesting that the plasmodium causing malaria are growing resistant and adapting over time. Therefore, humans have impacted biodiversity by causing resistance and hence changing the paths of evolution. In this way biodiversity will decrease as populations adapt, changing predation rates both for those preying on the changed population and the population being preyed upon by the adapted species. It can also affect biodiversity by bioaccumulation or causing the extinction of species.

Therefore, biodiversity has been lowered by the action of humans in changing evolutionary pathways as seen in the plasmodium resistance in the graph.

increasing