

33. Carboxylic acids and derivatives

33.2 Esters

Paper 4

Question Paper

- 1 Tyrosine and lysine, shown in Fig. 9.1, are naturally occurring amino acids found in proteins.

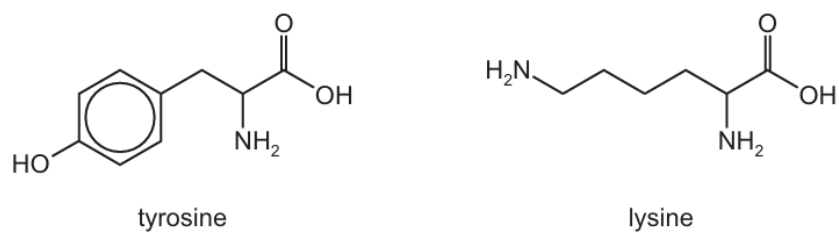


Fig. 9.1

- (c) Complete Table 9.1 by drawing the structure of the organic product formed when tyrosine reacts with each named reagent.

Ignore the directing effect of the $-\text{CH}_2\text{CHNH}_2\text{COOH}$ substituent.

Table 9.1

reagent	structure
an excess of $\text{Br}_2(\text{aq})$	
an excess of $\text{NaOH}(\text{aq})$	
an excess of $\text{HNO}_3(\text{aq})$	

[3]