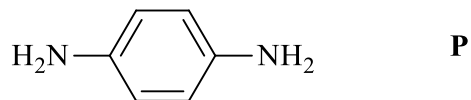


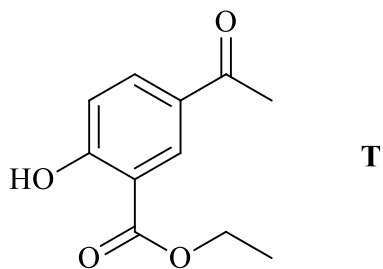
Marks
1

- Indicate the hybridisation of the carbon and nitrogen atoms in the diamine **P**.

N atoms: sp^3 C atoms: sp^2 **THE REMAINDER OF THIS PAGE IS FOR ROUGH WORKING ONLY.**

Marks
3

- Compound **T** is a precursor in the synthesis of the asthma drug salbutamol.



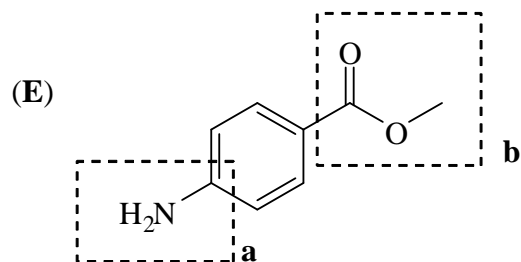
Give the molecular formula of compound **T**.

C₁₁H₁₂O₄

THE REMAINDER OF THIS PAGE IS FOR ROUGH WORKING ONLY.

Marks
5

- The structure of methyl 4-aminobenzoate, (**E**), is given below.



Give the molecular formula of compound (**E**).



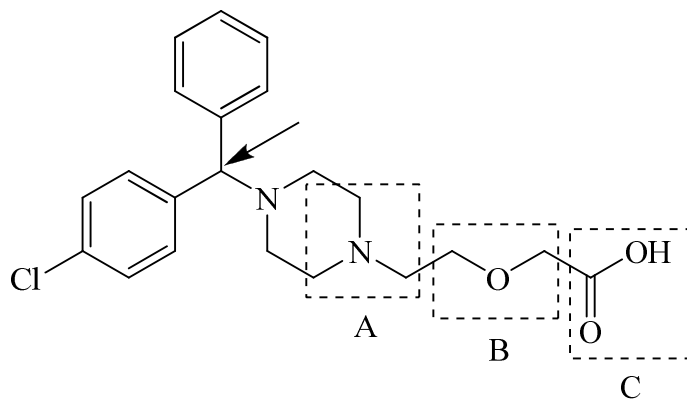
Name the functional groups in molecule (**E**) indicated by the boxes “**a**” and “**b**”.

a: amine

b: ester

- The structure of the antihistamine, Zyrtec™, is given below.

Marks
5



What is the name of the functional group in Box A?

Amine (tertiary)

What is the name of the functional group in Box B?

Ether

What is the name of the functional group in Box C?

Carboxylic acid