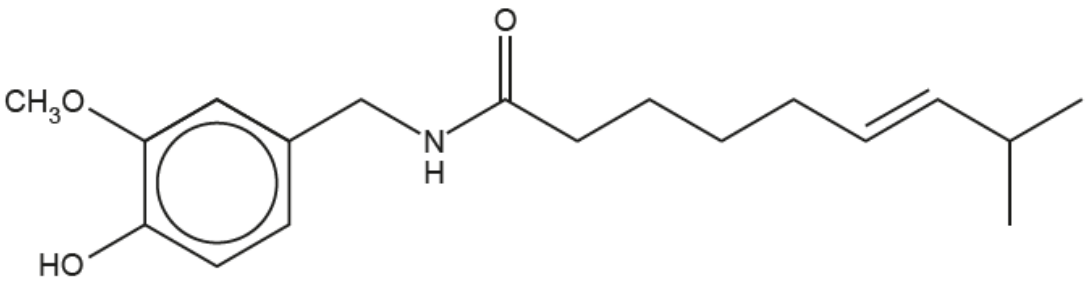
Halogen – 2023 A2 Chemistry 9701

1. Nov/2023/Paper_9701/41/No.8(b)

Capsaicin is found in chilli peppers.

capsaicin

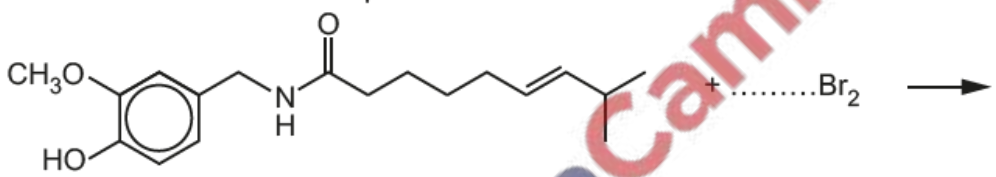


You should assume the CH_3O group is unreactive in the reactions involved in this question.

(b) Complete the equation for the reaction of capsaicin with an excess of $Br_2(aq)$ in the dark.

Draw the structure of the organic product in the labelled box.

capsaicin



organic product

+ .....

[3]

2. June/2023/Paper_9701/42/No.8(a _ b)

(a) Describe the difference in reactivity between chloroethane and chlorobenzene with $OH^-(aq)$.

Explain your answer.

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..... [2]

(b) Compound **T**, $C_5H_9O_2Cl$, is a useful synthetic intermediate.

Fig. 8.1 shows some reactions of **T**.

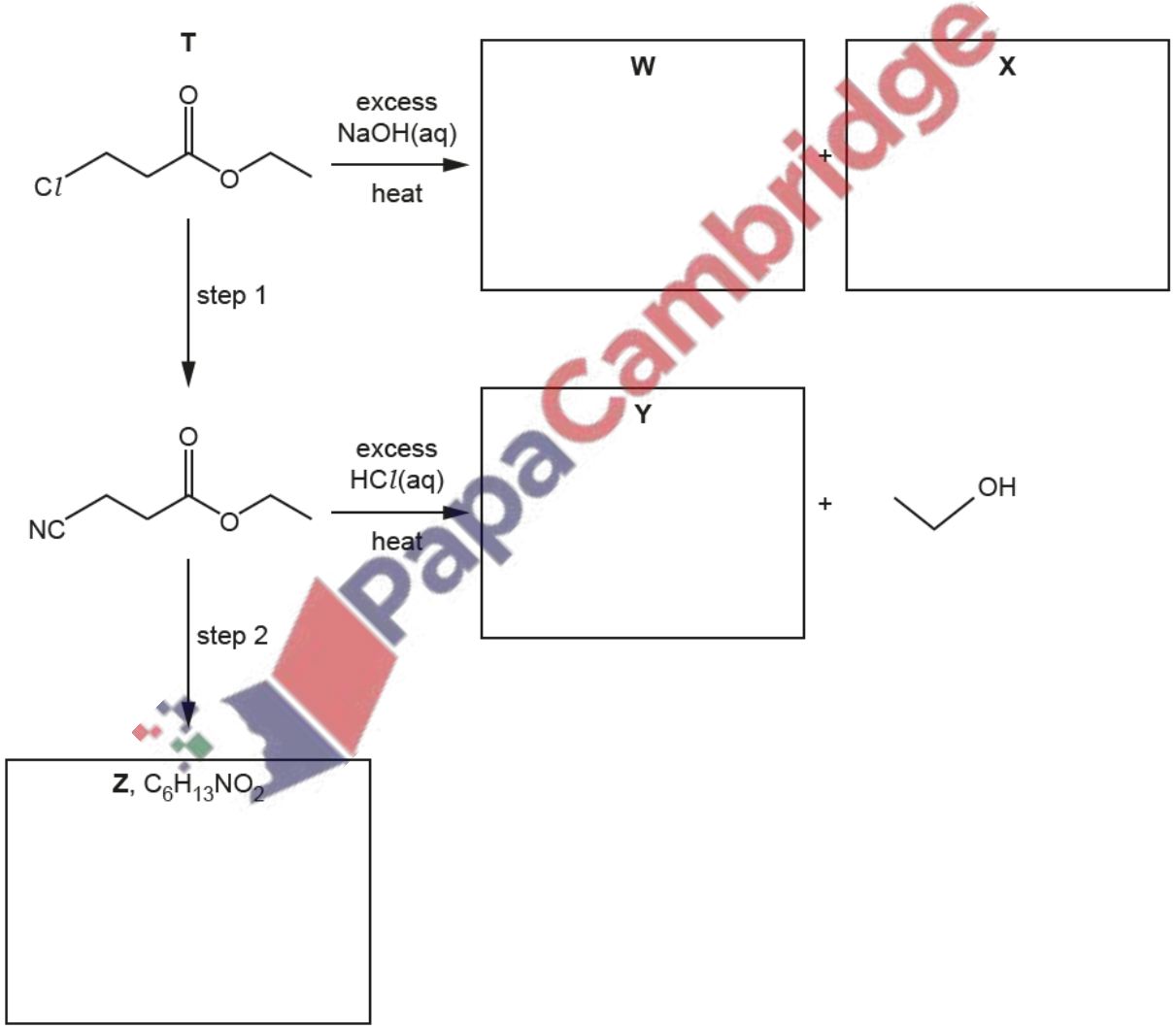

Fig. 8.1

(i) Give the systematic name for **T**.

..... [1]

(ii) Draw the structures of **W**, **X**, **Y** and **Z** in Fig. 8.1. [4]

(iii) State the reagents and conditions for steps 1 and 2 in Fig. 8.1.

step 1 .....

step 2 .....
[2]