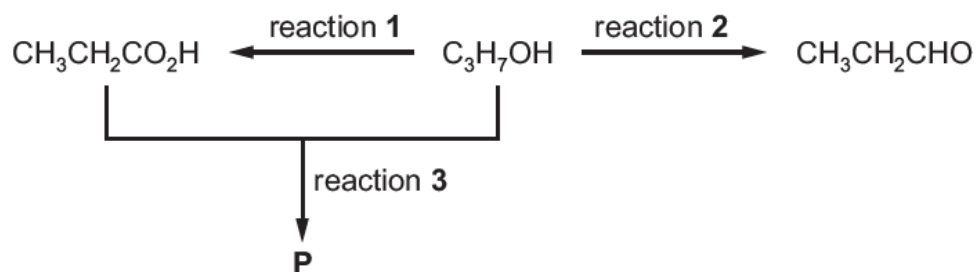


Hydroxyl Compounds – 2016

1. 9701/21/O/N/16/No.5

A sequence of reactions is shown starting with an alcohol, C₃H₇OH.



(a) Draw the skeletal formula of the alcohol C₃H₇OH.

[1]

(b) State the reagents and conditions needed for reaction 1.

.....
..... [2]

(c) State the reagents and conditions needed for reaction 2.

.....
..... [2]

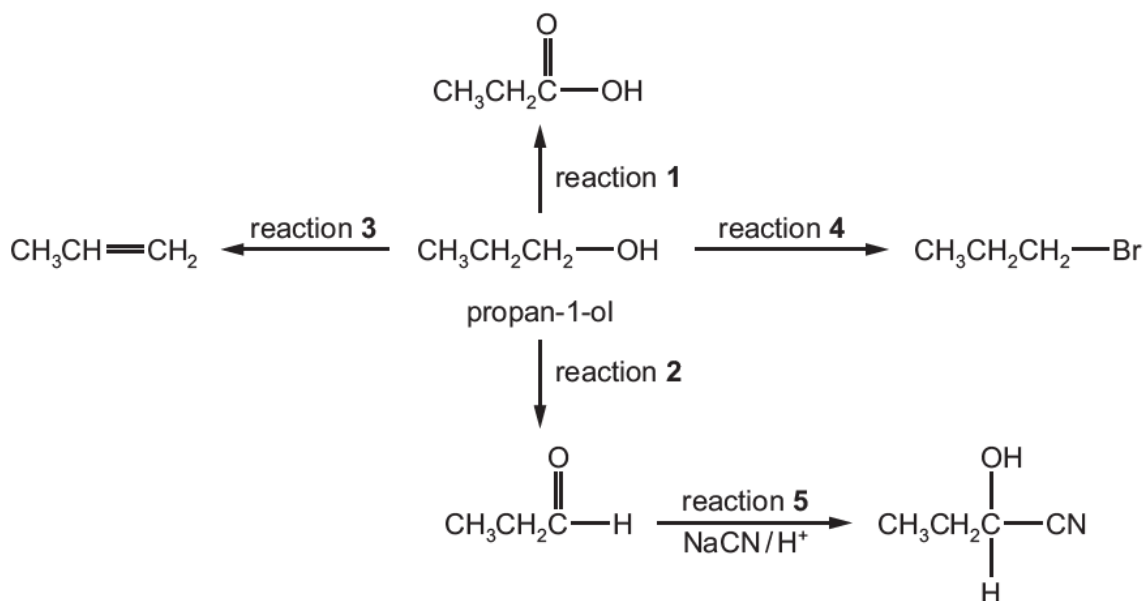
(d) Name **P**, the organic product of reaction 3.

..... [1]

[Total: 6]

2. 9701/22/M/J/16/No.5

A reaction sequence based on propan-1-ol is shown.



(a) Reactions 1 and 2 can both be carried out using the same reagents.

(i) Identify suitable reagents for reactions 1 and 2.

.....
 [1]

(ii) State and explain how the reaction should be carried out to ensure that reaction 2 rather than reaction 1 occurs.

.....

 [2]

(b) Identify the necessary reagents and conditions for each of reactions 3 and 4.

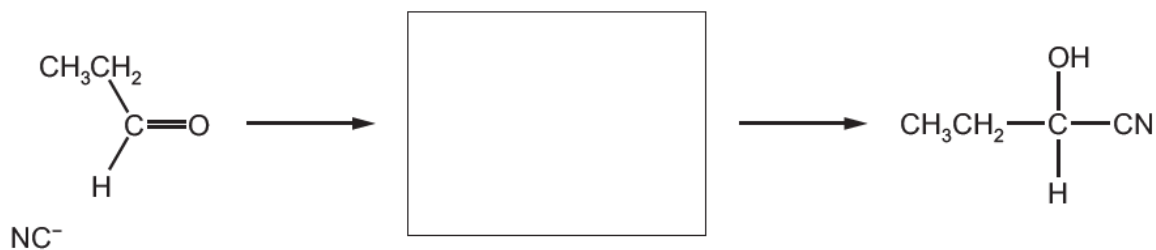
reaction 3

.....

reaction 4

..... [2]

- (c) (i) Complete the reaction mechanism for reaction 5. Include all relevant lone pairs, curly arrows, charges and partial charges.



[4]

The product of reaction 5 exhibits stereoisomerism.

- (ii) Draw the two stereoisomers in the conventional way.

.....

[2]

- (iii) Suggest why a mixture of the two stereoisomers is formed by reaction 5.

.....
.....
..... [2]

[Total: 13]