

Unit Test 单元测验

A-Level Chemistry · Unit 36 Organic synthesis

29 marks · 30 minutes

Score 得分:	1 Vocabulary ____ / 10	2 Questions ____ / 19	Total ____ / 29
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Part 1 · Vocabulary 词汇 (10 marks). Spelling must be exact in Sections A and C. A、C 部分拼写必须完全正确。

Section A · Chinese to English 中译英

Write the English word.

- | | | |
|-----------|-------|-----|
| 1. 缩合聚合 | _____ | [1] |
| 2. 聚酰胺 | _____ | [1] |
| 3. 染料 | _____ | [1] |
| 4. 二肽 | _____ | [1] |
| 5. 外消旋混合物 | _____ | [1] |
| 6. 双齿 | _____ | [1] |
| 7. 配体交换 | _____ | [1] |
| 8. 碎片 | _____ | [1] |

Section B · English to Chinese 英译中

Write the Chinese meaning.

- | | | |
|-------------------------------|-------|-----|
| 9. electrophilic substitution | _____ | [1] |
| 10. poly(ethene) | _____ | [1] |

Part 2 · Exam questions 考试题 (19 marks, 2 questions) begins on the next page. Answer in the spaces provided. 第二部分从下页开始。

7 Methyl red can be synthesised as shown in Fig. 7.1.

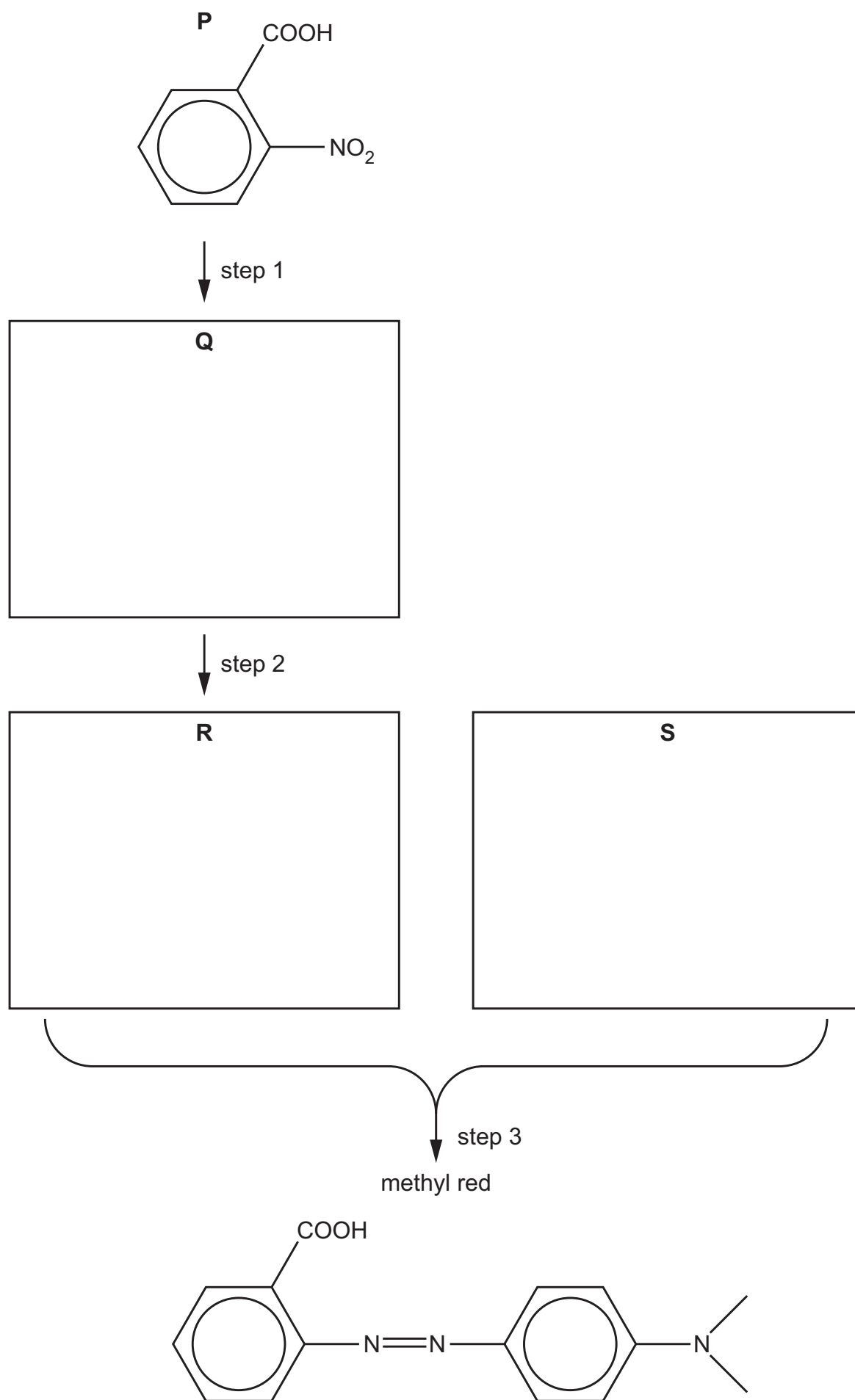


Fig. 7.1



- (a) (i) Give the systematic name of **P**.

..... [1]

- (ii) **P** can be synthesised as shown in Fig. 7.2.

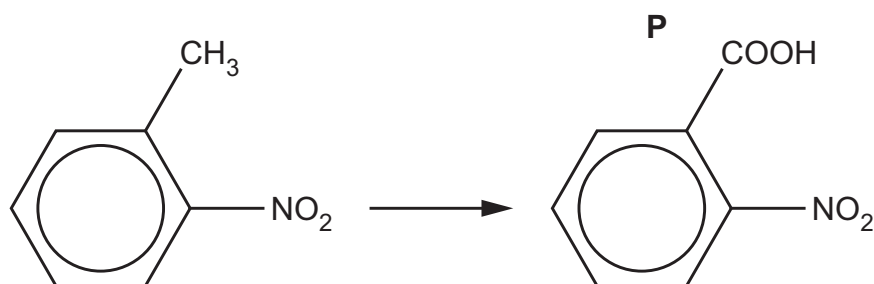


Fig. 7.2

Suggest reagents and conditions for this reaction.

..... [1]

- (iii) A student attempts to synthesise **P** by an alternative route, as shown in Fig. 7.3.

Compound **T** is the major product in this reaction rather than **P**.

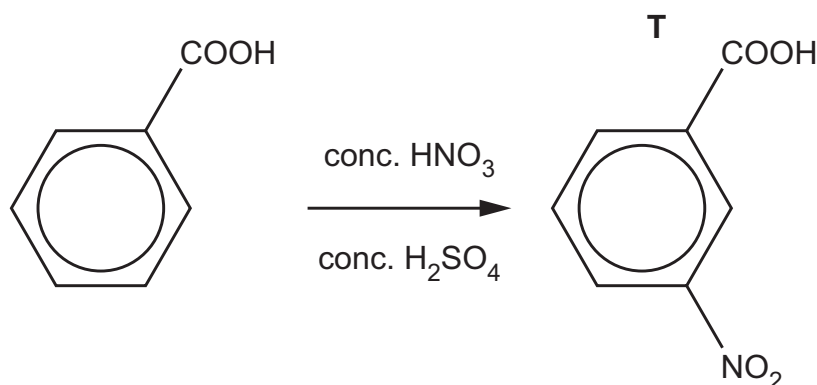


Fig. 7.3

Explain why **T** is the major product in this reaction.

.....
..... [1]

- (b) **S** reacts in a similar way to phenol in step 3.

- (i) Draw the structures of **Q**, **R** and **S** in the boxes in Fig. 7.1. [3]

- (ii) Suggest reagents and conditions for steps 1 and 2 in Fig. 7.1.

step 1

step 2

9 Butylamine, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{NH}_2$, can be synthesised from different organic compounds by using suitable reagents. Each reaction involves one step.

(a) Complete the table to describe three different syntheses.

- One of the three syntheses should involve a nucleophilic substitution reaction.
- The starting organic compound for each synthesis should contain a different functional group.
- A different reagent should be used for each synthesis.

starting organic compound	reagent and conditions

[6]

(b) Compare and explain the relative basicities of ammonia, butylamine and phenylamine.

..... > >
most basic least basic

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.....
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.....
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.....
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[4]

[Total: 10]