Practice Question Set For A-Level
Subject : Chemistry
Paper-2 Topic: Physical

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Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Mark Schemes

Q1.

(a) (i) M_r N−phenylethanamide = 135.0

1

Theoretical yield = 135.0 × 2 (1.15 / 284.1) = 1.09 g

1

Answer recorded to 3 significant figures.

1

(ii) $\frac{0.89}{\text{Ans to (a)}} \times 100$

= 81.4 %

Mark consequentially to (a)
Allow 81 to 82

1

(b) (i) Dissolve the product in the **minimum** volume of water / solvent (in a boiling tube / beaker)

If dissolving is not mentioned, CE = 0 / 4

1

Hot water / solvent

Steps must be in a logical order to score all 4 marks

1

Allow the solution to cool and allow crystals to form.

1

Filter off the pure product under reduced pressure / using a Buchner funnel and side arm flask

Ignore source of vacuum for filtration (electric pump, water pump, etc.)

1

(ii) Measure the melting point

1

Use of melting point apparatus or oil bath

1

Sharp melting point / melting point matches data source value

1

(iii) Any **two** from:
Product left in the beaker or glassware

Sample was still wet
Sample lost during recrystallisation.

Do not allow "sample lost" without clarification.

2 Max

(c) An identified hazard of ethanoyl chloride

E.g. "Violent reaction", "harmful", "reacts violently with water"
Do not allow "toxic", "irritant" (unless linked with HCl gas).

1

HCl gas / fumes released / HCl not released when ethanoic anhydride used

1

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Q2.

(a) (i) Uses sensible scales

*Lose this mark if the **plotted points** do not cover half of the paper.*

Lose this mark if the graph plot goes off the squared paper.

1

Plots **all** of the points correctly ± one small square

1

Draws a best-fit line

Lose this mark if the student's line includes either of the points at 0.5 / 0.48 or 3.5 / 2.28

Lose this mark if the student's line is doubled or kinked.

Lose this mark if the student's line does not pass within one small square of the origin, extending the line if necessary.

1

(ii) 1.38 to 1.47

Allow answer in this range only.

Answer must correspond to value from the student's graph.

1

(iii) **M1**

Moles NaOH = 1.00 / 40 and
Moles water = (part(b) – 1) / 18

Allow any correct method which uses the answer from part (b).

1

M2

Ratio NaOH : H_2O is close to 1:1

*Must compare experimental result with theoretical result to score **M2**.*

1

(b) (i) **2**NaOH + **2**Al + **6**H_2O → **2**$NaAl(OH)_4$ + **3**H_2

Ignore state symbols.

1

(ii) <u>Pressure build-up due to the production of hydrogen / H_2 / gas</u>

Ignore references to the flammability / explosive nature of hydrogen.

1

(c) (Alkali is) corrosive / caustic

Allow '(alkali) burns skin'.

Ignore 'harmful', 'dangerous'.

Do not allow 'toxic' or 'irritant'.

1

[9]