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

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Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 28 Marks **Time : 28 Minutes**

Mark Schemes

Q1.

A

[1]

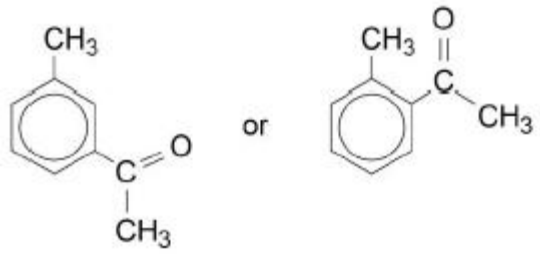
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Q2.

(a) $C_9H_{10}O$

1

(b)



1

Position (isomerism).

Allow Positional.

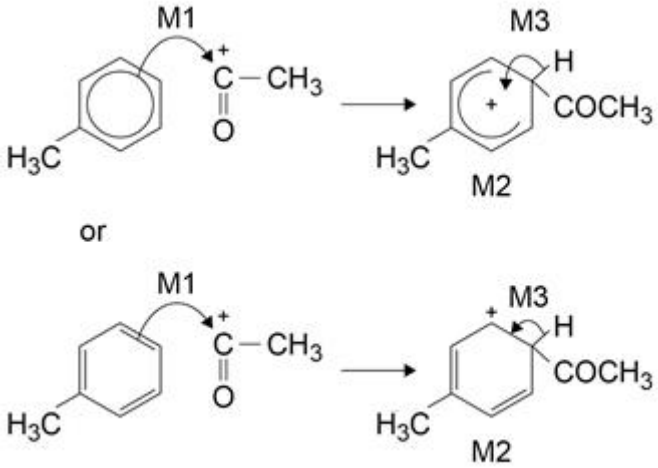
1

(c) Electrophilic substitution

1

$CH_3COCl + AlCl_3 \longrightarrow CH_3CO^+ + AlCl_4^-$

1



Mechanism 3 marks:

M1 *arrow from circle or within it to C of CH_3C^+O (+ must be on C of CH_3C^+O).*

1

M2 *for Intermediate (**must** be 4-isomer)*
CH_3CO must be correctly positioned and bonded to gain M2
horseshoe must not extend beyond C2 to C6 but can be smaller
+ not too close to C1.

1

M3 *arrow into hexagon unless Kekule*
Loss of H^+ (allow from incorrect isomer)
Allow M3 arrow independent of M2 structure
Ignore base removing H in M3.

Allow Kekule structures (which must be correct).

1

[8]

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Q3.

A

[1]

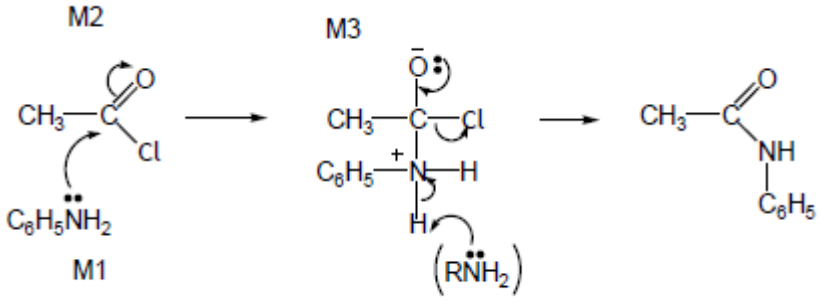
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Q4.

(a) (nucleophilic) addition-elimination

Not electrophilic addition-elimination

1



Allow C_6H_5 or benzene ring

Allow attack by :$NH_2C_6H_5$

M2 not allowed independent of M1, but allow M1 for correct attack on C+

M3 for correct structure <u>with charges</u> but lone pair on O is part of M4

M4 (for three arrows and lone pair) can be shown in more than one structure

4

(b) **The minimum quantity of hot water was used:**

To ensure the hot solution would be saturated / crystals would form on cooling

1

The flask was left to cool before crystals were filtered off:

Yield lower if warm / solubility higher if warm

1

The crystals were compressed in the funnel:

Air passes through the sample not just round it

Allow better drying but not water squeezed out

1

A little cold water was poured through the crystals:

To wash away soluble impurities

1

(c) Water

Do not allow unreacted reagents

1

Press the sample of crystals between filter papers

Allow give the sample time to dry in air

1

(d) M_r product = 135.0

1

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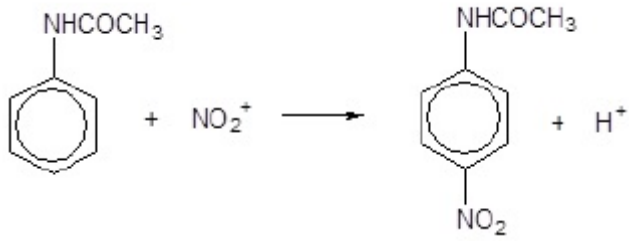
Expected mass = 5.05 × $\frac{135.0}{\quad}$ = 7.33 g

1

Percentage yield = $\frac{4.82}{7.33}$ × 100 = 65.75 = 65.8(%)

Answer must be given to this precision

(e)



OR

$C_6H_5NHCOCH_3 + NO_2^+ \rightarrow C_6H_4(NHCOCH_3)NO_2 + H^+$

1

(f) Electrophilic substitution

1

(g) Hydrolysis

1

(h) Sn / HCl

Ignore acid concentration; allow Fe / HCl

1

[18]

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