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

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Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

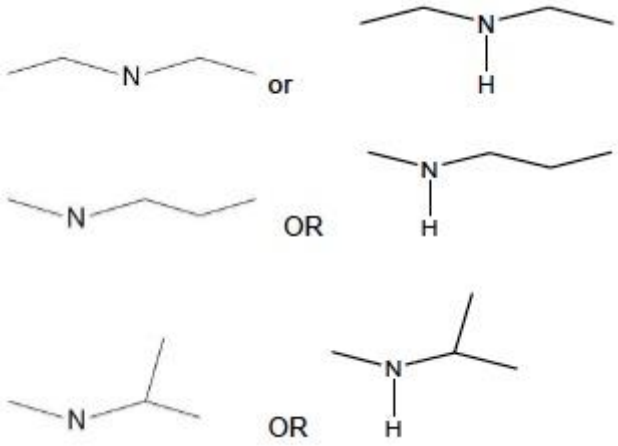
Mark Schemes

Q1.

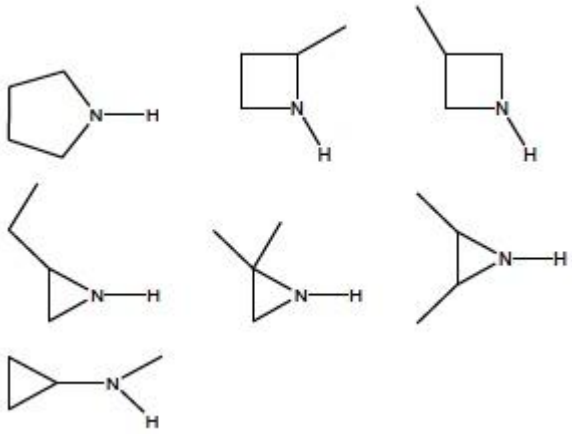
(a) C B A this order only

1

(b) Any three from



Must be skeletal *– allow with or without H on N*
All 3 correct score 2 (or one if not skeletal)
Any two correct score 1 (or zero if not skeletal)
Allow cyclic II^{o} amines but NOT amines also containing other functional groups



2

(c) With halogenoalkane:

further reaction (of primary amines)

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OR

Impure product/mixture of products/lower atom economy

Ignore bi-product / yield

1

With nitriles

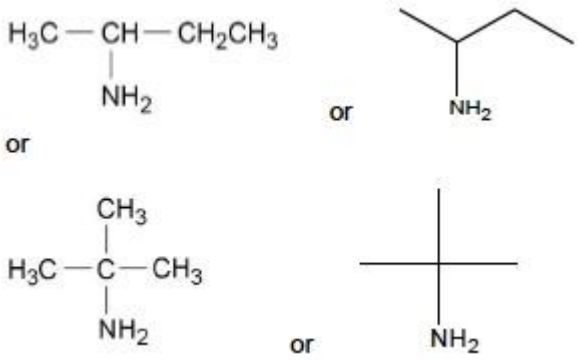
No further reaction

OR

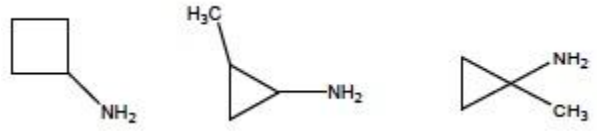
Single product / higher atom economy

1

(d)



Allow cyclic I^o amines but NOT amines also containing other functional groups



1

(e) $CH_3CH_2CH_2NH_2 + H_2O \rightleftharpoons CH_3CH_2CH_2NH_3^+ + OH^-$

Allow simple arrow

Not C_3H_7

1

(green) turns blue

Allow blue-green, blue-purple

1

(f) $C_6H_5NO_2 + 6[H] \rightarrow C_6H_5NH_2 + 2H_2O$

Not H2

Not molecular formulae

OR



1

$C_6H_5NH_2$ present as ionic salt OR $C_6H_5NH_3^+$ (Cl^-) OR phenyl ammonium (chloride)

Allow present as an ion

But not phenylammonium hydroxide

1

[10]

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Q2.

(a) Bromine (water)

1

Colour change from orange to colourless

1

(b) Add sodium hydrogencarbonate (or alternative named carbonate)

Allow suitable correct alternative test e.g.

Test the pH with named indicator (e.g. Universal Indicator)

1

Propanoic acid will produce effervescence / bubbles

Propanoic acid would turn Universal Indicator red

1

(c) Tollen's reagent

1

(Colourless solution to) silver mirror

1

OR

Fehling's solution

(Blue solution to) brick red precipitate

(d) Absorption at 1680–1750 cm^{-1} caused by C=O

1

No absorption at 1620−1680 cm^{-1} caused by C=C

1

No absorption at 3230–3550 cm^{-1} due to −OH (alcohol)

1

No absorption at 2500–3000 cm^{-1} due to −OH (acid)

1

[10]

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