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

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

Mark Schemes

Q1.

(a) Use H_2SO_4

Allow HCl / H_3PO_4

Ignore conc / dilute

1

(b) M1 Cool test 2

warm (water bath)

Allow heat / hot

M2 Gas is tested with lighted splint in test 3

Bubble into limewater

Allow no test on gas needed

2

(c) M1 J and M

M2 Test 1 (Orange solution goes) green

M3 M

M4 Test 2 (Blue solution gives a brick) red precipitate

Allow (Brown-red/orange/orange-red)

M5 J and L

M6 Test 3 (Colourless gas that turns) limewater cloudy

Allow M6 Test 3 fizz / effervescence

M7 K

M8 Test 4 (Orange solution goes) colourless

Allow (Brown/Brown-red/yellow/yellow-orange)

Allow decolorises bromine

8

(d) M1 S - Fractionating column

M1 Allow beads

M2 Both T - Water out AND U - Water in

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M3 Liquids K and M are likely to have similar boiling points

3

[14]

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Q2.

This question is marked using levels of response. Refer to the Mark Scheme Instructions for Examiners for guidance on how to mark this question.

Level 3 **5-6 marks**	**All stages are covered and each stage is generally correct and virtually complete.** (6 v 5) Answer is well structured, with no repetition or irrelevant points, and covers all aspects of the question. Accurate and clear expression of ideas with no errors in use of technical terms.
Level 2 **3-4 marks**	**All stages are covered but stage(s) may be incomplete or may contain inaccuracies OR** **two stages are covered and are generally correct and virtually complete.** (4 v 3) Answer has some structure and covers most aspects of the question. Ideas are expressed with reasonable clarity with, perhaps, some repetition or some irrelevant points. If any, only minor errors in use of technical terms.
Level 1 **1-2 marks**	**Two stages are covered but stage(s) may be incomplete or may contain inaccuracies OR** **only one stage is covered but is generally correct and virtually complete.** (2 v 1) Answer includes statements which are presented in a logical order and / or linked.
0 marks	Insufficient correct chemistry to gain a mark.

Stage 1
Identifying aldehyde / 2-methylpropanal
1a Tollens' or Fehling's
1b silver mirror or orange-red precipitate

Stage 2
Identifying alcohol / 2-methylpropan-1-ol
2a acidified potassium dichromate
2b (orange to) green
2c tests done in suitable sequence to distinguish aldehyde from alcohol, or to state that aldehyde would give same result if this test is done first

If aldehyde is identified, alcohol may be identified by elimination of the other two as acids using Na_2CO_3/$NaHCO_3$/Mg/indicator (2a = appropriate reagent, 2b = correct observations, 2c = in a suitable sequence)

Stage 3
Distinguishing the acids
3a using IR spectroscopy to distinguish the two acids (or other suitable technique)
3b use finger-print region of IR spectrum (feature of spectrum to use)
3c look for exact match to spectra of known compounds (what the difference is)

[6]

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