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

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Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 27 Marks **Time : 27 Minutes**

Mark Schemes

Q1.

(a) Compounds with the same molecular formula **1**

but different structures due to different positions of the same functional group on the same carbon skeleton/chain **1**

(b) Compound A is butan-1-ol only **1**

Compound C is butanone or butan-2-one
(penalise but-1-ol, but allow repeat error for but-2-one)
(credit butane-1-ol) **1**

(c) (i) oxidation or redox **1**

(ii) $K_2Cr_2O_7$ or potassium dichromate(VI)
(penalise the dichromate ion or incorrect oxidation state, but mark on) **1**

acidified or H_2SO_4 (or other identified strong acid)
(penalise H^+)
(do not credit the acid unless M1 has been correctly attempted) **1**

(iii) (heat under) reflux

OR use excess oxidising agent **1**

(iv) correctly drawn structure of 2-methylpropan-2-ol
(insist on clearly drawn C-C and C-0 bonds) **1**

(v) correctly drawn structure of methanoic acid
(insist on C-0 and C=O displayed in the formula) **1**

(d) (i) Tollens' reagent or this whole reagent specified
(ammoniacal silver nitrate)
OR Fehling's solution
OR acidified potassium dichromate(VI)

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(ii) correctly drawn structure of methylpropanal

(insist on C-H and C=O of aldehyde displayed in the formula)

1

[12]

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Q2.

(a) (i) addition of water / steam **(1)**

Ignore "to the reaction"

(ii) *Advantage*: low technology
renewable feedstock / resource
allowed for use in drinks, perfumes
considered to be green **(1)**

any one
NOT "infinite" or "non-finite" resource

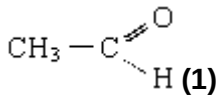
Disadvantage:
slow
low yield
significant land use
has to be distilled
labour intensive

any one
Ignore yeast
NOT (unqualified) batch production
NOT impure product

3

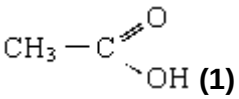
(b) (i)

Structure of aldehyde


(1)

NOT CH_3CHO

Structure of carboxylic acid


(1)

NOT CH_3COOH

Penalise incorrect R group once

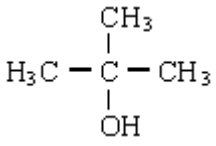
(ii) *Reagent*: sodium (/ potassium) dichromate (VI)
(VI not essential) (1) M1

Conditions: acidified or sulphuric acid **(1) Can be with reagent M2**
(heat under reflux) **(1) M3**

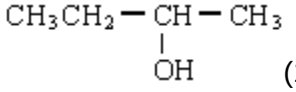
Or correct formula for M1 and M2
M2 depends on M1 (but M2 correct from $Cr_2O_7^{2-}$, $K_2Cr_2O_7^{2-}$ etc
M3 mark independent
Credit $KMnO_4$ for M1
Ignore T and P for M2

5

(c) (i)


(1)

(ii)


(1)

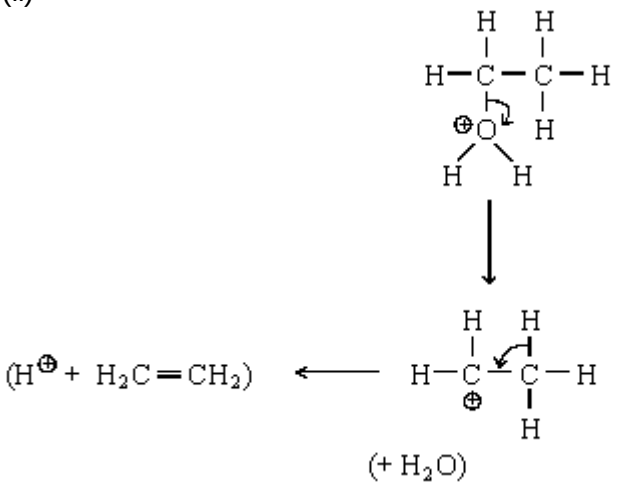
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(d) (i) Al_2O_3 or H_2SO_4 or H_3PO_4 **(1)**

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Name or formula

(ii)



(1) formula M1
(1) arrow M2

(1) formula M3
(1) arrow M4

For M1 the + can be on O or H if -OH_2 used
For M2 the arrow must go to the + or to oxygen
Synchronous loss without carbocation loses carbocation structure mark; can still score ¾ i.e. penalise M3

5

[15]

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