Practice Question Set For A-Level
Subject : Chemistry
Paper-2 Topic: Nuclear Magnetic Resonance Spectroscopy

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 21 Marks **Time : 21 Minutes**

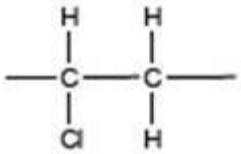
Mark Schemes

Q1.

(a) Benzene-1,2-dicarboxylic acid
Allow 1,2-benzenedicarboxylic acid

1

(b)



Must show all bonds including trailing bonds
Ignore n

1

(c) (i) 2 C_2H_5OH
NB Two ethanols

1

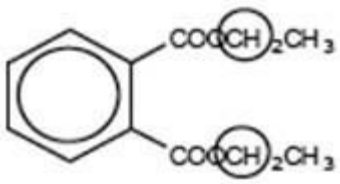
H_2O
but only one water

1

(ii) 6 or six

1

(iii)

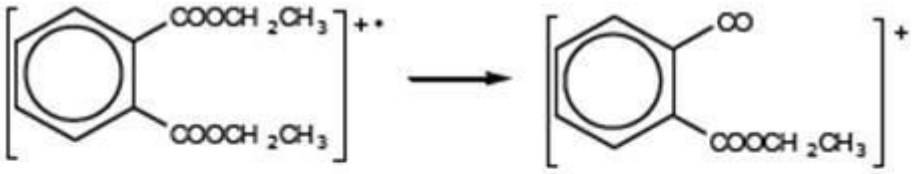


Ignore overlap with O to the left or H to the right, but must only include this one carbon. either or allow both (as they are identical)

1

(d)

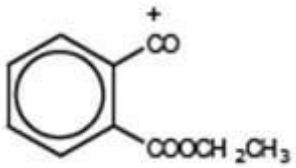
Downloaded from www.merit-minds.com



$\dot{O}CH_2CH_3$

$[DEP]^{+\cdot}$

OR $[C_{12}H_{14}O_4]^{+\cdot} \rightarrow [C_{10}H_9O_3]^{+} + [C_2H_5O]^{\cdot}$



Allow + on C or O in

1

Dot must be on O in radical

1

(e) (i) Rate = *k*[DEP]

Must have brackets but can be ( )

1

(ii) Any **two** of

- experiment repeated/continued <u>over a long period</u>
- repeated by independent body/other scientists/avoiding bias
- investigate breakdown products
- results made public

Not just repetition

Ignore animal testing

2 max

[11]

Downloaded from www.merit-minds.com

Q2.

(a) GLC or distillation

1

(b) C=O

1

(c) (i) Cl has two isotopes

1

(ii) $CH_3\overset{+}{C}=O$

1

$C_4H_7ClO^{+\bullet} \rightarrow CH_3\overset{+}{C}=O + C_2H_4Cl^{\bullet}$

1

(d) (i) e.g. $CDCl_3$ or CCl_4

1

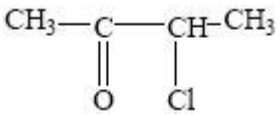
(ii) $Si(CH_3)_4$

1

(e) 0 and 3

1

(f)



1

(g) $CH_3CH_2CH_2COCl$ or $(CH_3)_2CHCOCl$

1

[10]

Downloaded from www.merit-minds.com