Practice Question Set For A-Level
Subject : Chemistry
Paper-1 Topic: Inorganic 2

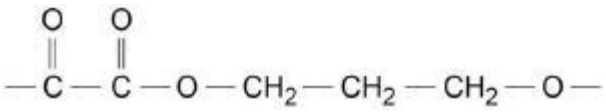
Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

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

Mark Schemes

Q1.

(a)



M1 ester link including C−O−C
ignore *brackets and 'n'*
allow *$(CH_2)_3$*
−O− at either end but ***not*** *both*

1

M2 rest of structure including trailing bonds
not *M2 if more than one repeating unit*
allow *for one mark $-OOCCOOCH_2CH_2CH_2-$ as long as trailing bonds included*

1

(b) polyesters: C=O/C−O **OR** polar bonds / chain **AND**
polyalkenes: (only) C−C **OR** non-polar bonds / chain
not *just 'polyesters are polar'*
not *M1 if C=C mentioned*

1

(polyesters) susceptible to nucleophilic attack / can be hydrolysed

1

(c) **M1** amount of $Na_2C_2O_4 = \frac{0.162}{134.0} = 0.00121$ mol
M1 x $\frac{2}{5}$

1

M2 stoichiometry $\left(\frac{2}{5}\right)$ (4.84×10^{-4})

1

M3 scaling (÷10)

$= 0.00121 \times \frac{2}{5} \div 10 = 4.84 \times 10^{-5}$ mol
M2 ÷ 10 (conc/40)
$M3 \times \frac{1000}{23.85}$

1

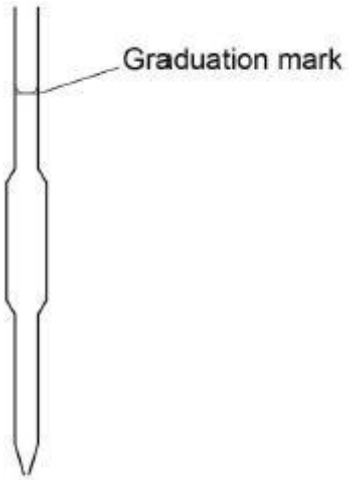
Downloaded from www.merit-minds.com

M4 concentration of MnO_4^- = $\frac{4.84 \times 10^{-5}}{\text{23.85}}$ = 0.00203 mol dm^{-3}

Min 2 sig figs

1

(d)



Meniscus curved with the bottom of the curve on the horizontal line

1

(e) (burette) fill below/at eye level

ignore *make sure tap closed / funnel / gloves*

1

(solution) wear gloves

allow *wash/rinse hands after any spillage* ***not*** *fume cupboard*

ignore *lab coat / stir carefully*

1

(f) colourless to pink/pale purple

not *just purple*

not *'clear' for 'colourless'*

1

(g) remove funnel

1

ensure jet is filled / no (air) bubbles

allow *open tap to fill space below tap*

1

(h)

This question is marked using Levels of Response. Refer to the Mark Scheme Instructions for Examiners for guidance.	
Level 3 **5-6 marks**	All stages are covered and each stage is generally correct and virtually complete. Answer is communicated coherently and shows a logical progression from Stage 1 to Stages 2 and 3 Covers at least 2 point for stage 1, 1 for stage 2 and 2 for stage 3. If given equation must show correct stoichiometry for six marks

Downloaded from www.merit-minds.com

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. Answer is communicated mainly coherently and shows a logical progression from Stage 1 to Stages 2 and 3.
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. Answer includes isolated statements but these are not presented in a logical order.
Level 0	Insufficient correct chemistry to gain a mark.

Stage 1 - ∆H
1a ∆H negligible
1b make & break same number of bonds 1c make & break same type of bonds / bonds have similar enthalpies

Stage 2 - ∆S
2a increase in entropy
2b increase in particles in solution / from 4 to 7 particles (ecf from incorrect equation showing increase in no. of moles)

Stage 3 - ∆G
3a $\Delta G = \Delta H - T\Delta S$
3b ∆G negative (for forward reaction)
3c correct discussion of why ∆G is negative based on ∆H and T∆S

6

[20]

Downloaded from www.merit-minds.com