OCR
RECOGNISING ACHIEVEMENT

GCE

Chemistry (Salters)

Advanced GCE **A2 7887**

Advanced Subsidiary GCE **AS 3887**

Mark Schemes for the Units

January 2010

3887/7887/MS/R/10J

Oxford Cambridge and RSA Examinations

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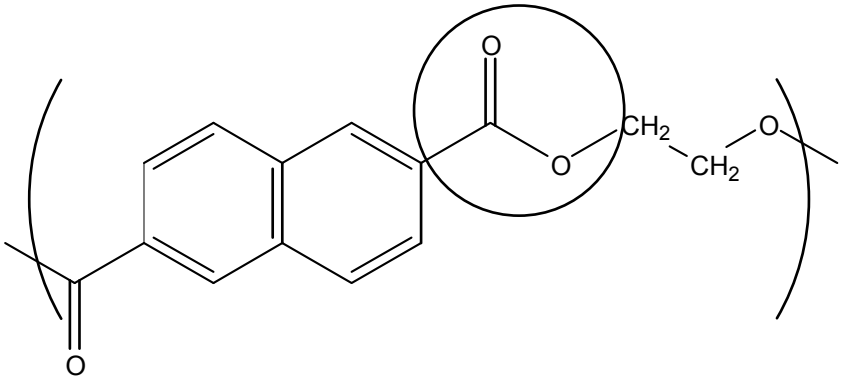
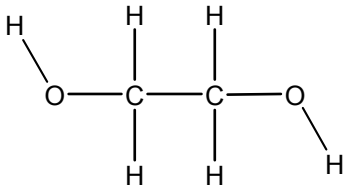
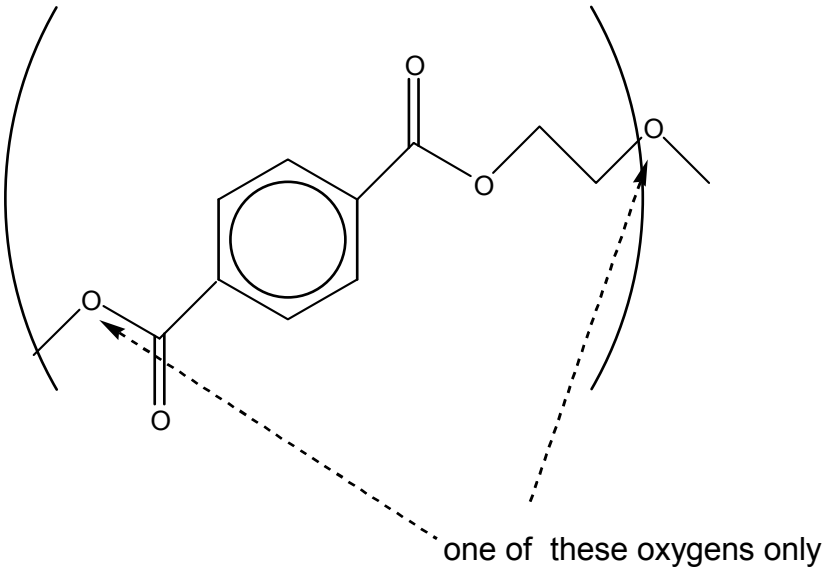
Advanced GCE Chemistry (Salters) (7887)

Advanced Subsidiary GCE Chemistry (Salters) (3887)

MARK SCHEME ON THE UNITS

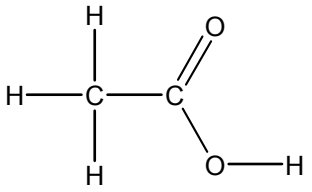
2849 Chemistry of Materials

Question	Expected answers	Marks
1 (a) (i)	 (1) **;** **allow** without the C within the ring.	**1**
1 (a) (ii)	 all bonds must be shown (1) **;**	**1**
1 (b) (i)	 ester linkage correct (1) **;** rest correct (1) **;** ***ignore*** *brackets* **allow** ecf from 1(a).	**2**

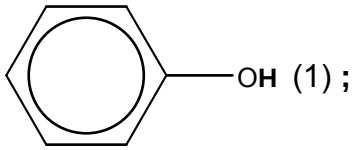
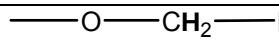
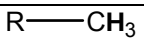
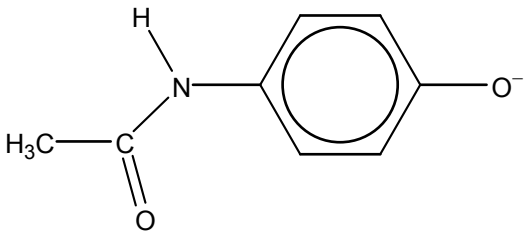
Question	Expected answers	Marks
1 (b) (ii)	(below T_g) chains do not have enough **energy** (may describe in terms of vibration or motion of chains) (1) **;** to **move over / slide over one another** (1) **;** **force applied** to change shape of polymer will cause 'frozen' chains to break / AW (1) **;**	**3**
1 (b) (iii)	intermolecular forces / bonds between chains are greater (1) **;** because chains are able to get closer (because of the flat ring system) / so more energy is needed to separate the chains(1) **;**	**2**
1 (c)	burning / combustion (1) **;** energy produced can be used / reducing landfill (1) **;** ***or*** recycling AW (1) **;** oil resources saved AW /r educing landfill (1) **;** **do NOT allow** cracking, but **allow** reducing landfill.	**2**
1 (d) (i)	$K_C = \dfrac{[\mathbf{C}] \times [H_2O]^2}{[\mathbf{B}] \times [C_2H_5OH]^2}$ [Products] / [Reactants] (1) **;** indices correct (1) **;**	**2**
1 (d) (ii)	equilibrium position moves in exothermic direction / right since forward reaction is exothermic AW (1) **;** K_c, increases (1) **;** *ecf here for second mark*.	**2**
	Total mark	**15**

Question	Expected answers	Marks
2 (a) (i)	+5 (1) **;** ***accept*** 5+	**1**
2 (a) (ii)	H^+ / HCl in hydrogen electrode beaker (1) **;** **both** electrodes made from Pt (1) **;** electrode dipping into a solution VO_2^+ and VO^{2+} containing H^+ ions (1) **;** conditions given as 1 mol dm^{-3} concentrations **and** 298K / 1 atm (1) **;** salt bridge and circuit correct (1) **;**	**5**
2 (b) (i)	1.26 V (1) **;**	**1**
2 (b) (ii)	V^{2+} / V^{3+} (*may give more detail of half-cells*) because it has the more negative / less positive electrode potential / AW / in terms of reducing agent / oxidizing agent or electron transfer (1) **;**	**1**
2 (c) (i)	$V^{2+} \rightarrow V^{3+} + e^-$ (1) **;**	**1**
2 (c) (ii)	$V^{2+} + VO_2^+ + 2H^+ \rightarrow V^{3+} + VO^{2+} + H_2O$ correct reactants and products (1) **;** equation given balanced correctly (1) **;**	**2**
2 (d) (iii)	specific frequencies of visible radiation / light absorbed (by ions in solution) (1) **;** rest of visible light transmitted (as green colour) AW (1) **;**	**2**
	Total mark	**13**

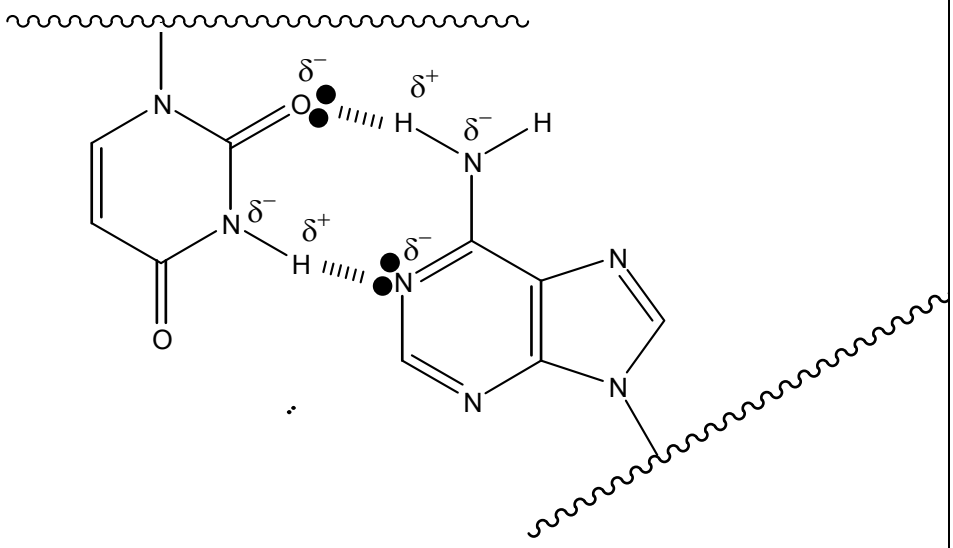
<table>
<tr><th>Question</th><th>Expected answers</th><th>Marks</th></tr>
<tr><td>3 (a)</td><td>1 mark for points in bold, then any 2 from 3:
dissolve the sample in the minimum amount / AW (1) ;
of hot ethanol (1) ;
filter (off any solid impurities) (1) ;
leave (solution / filtrate) to cool/to form crystals (1) ;
filter off crystals / decant solution (1) ;
wash crystals (1) ;
and dry (1) ;
QWC see separate sheet (1) ;</td><td>6

1</td></tr>
<tr><td>3 (b) (i)</td><td>broad peak / absorbance around 3100 cm^{-1} indicates O-H (in carboxylic acid) (1) ;
strong peak / absorbance around 1720 cm^{-1} indicates C=O (in carboxylic acid) (1) ;
hence –COOH / carboxylic acid (1) ;
the first two marks are for identifying the two important peaks, however much detail is given. These may be shown on the spectrum.</td><td>3</td></tr>
<tr><td>3 (b) (ii)</td><td> 
correct molecular formula (1) ;
correct structure (1) ; do not allow OH</td><td>2</td></tr>
<tr><td>3 (b) (iii)</td><td>M_r of acetaminophen =179.0 (1) ;
mass of pure acetaminophen in sample = 0.010 x 179.0 i.e mol x M_r ecf M_r (1) ;
percentage = (1.790 / 3.00) x 100 = 59.7 % ecf (1) ;</td><td>3</td></tr>
<tr><td>3 (c) (i)</td><td>iron(III) chloride in solution is yellow
accept brown / yellow or brown + orange / red (1) ;
<table><tr><th>compound</th><th>observations on adding aqueous Iron(III) chloride</th></tr><tr><td>acetaminophen</td><td>turns purple/violet (1);</td></tr><tr><td>phenacetin</td><td>remains yellow/brown/colour does not change ecf (1).</td></tr></table></td><td>3</td></tr>
</table>

<table>
<tr><th>Question</th><th>Expected answers</th><th>Marks</th></tr>
<tr><td>3 (c) (ii)</td><td>
<table>
<tr><th>chemical shifts for acetaminophen</th><th>type of proton</th><th>relative intensity</th></tr>
<tr><td>4.5 -10.0 (1) ;

only one peak otherwise no marks</td><td>  (1) ;
/ phenolic OH</td><td></td></tr>
</table>
<table>
<tr><th>chemical shifts for phenacetin</th><th>type of proton</th><th>relative intensity</th></tr>
<tr><td>3.6</td><td>  </td><td>2</td></tr>
<tr><td>0.8-1.2</td><td>  </td><td>3
(1) ; for relative intensities</td></tr>
</table>
1 mark for each set of shift & proton type correct (2)
</td><td>5</td></tr>
<tr><td>3 (d) (i)</td><td>phenol / hydroxyl (1) ;</td><td>1</td></tr>
<tr><td>3 (d) (ii)</td><td> 
negative ion formed by proton loss (1) ;
correct structure (1) ;
allow 1 mark if amide bond is hydrolysed but phenol has lost proton</td><td>2</td></tr>
<tr><td colspan="2">Total mark</td><td>26</td></tr>
</table>

<table>
<tr><th>Question</th><th>Expected answers</th><th>Marks</th></tr>
<tr><td>4 (a)</td><td>corrosion resistance / stainless / hard / lustrous AW / high strength / hard / AW (1) ;</td><td>1</td></tr>
<tr><td>4 (b) (i)</td><td>magnesium sulphide / MgS (1) ;</td><td>1</td></tr>
<tr><td>4 (b) (ii)</td><td>coolant (oxygen blow is very exothermic) (1) ;</td><td>1</td></tr>
<tr><td>4 (b) (iii)</td><td>any two from:
carbon, phosphorus, manganese, silicon (1) ;</td><td>1</td></tr>
<tr><td>4 (c)</td><td>
<table>
<tr><th>statement</th><th>true</th><th>false</th></tr>
<tr><td>Iron is reduced</td><td></td><td>✓</td></tr>
<tr><td>Iron(II) ions are oxidized</td><td>✓</td><td></td></tr>
<tr><td>Electrons move through the water in the cell that is set up</td><td></td><td>✓</td></tr>
<tr><td>Iron(II) ions form a brown precipitate in the presence of hydroxide ions</td><td></td><td>✓</td></tr>
</table>
</td><td>2</td></tr>
<tr><td>4 (d) (i)</td><td>3d 4s
Ni 
Ni^{2+} 
correct number of electrons in Ni (1) ;
correct arrangement for Ni^{2+} (1) ;</td><td>2</td></tr>
<tr><td>4 (d) (ii)</td><td>$3Ni + 2NO_3^- + 8H^+ \rightarrow 3Ni^{2+} + 2NO + 4H_2O$
correct reactants and products (1) ;
balanced (1) ;</td><td>2</td></tr>
<tr><td>4 (e) (i)</td><td>$[Ni(H_2O)_6]^{2+}$ = 6 (1) ;
$[Ni(dimethylglyoxime)_2]^{2+}$= 4 (1) ;</td><td>2</td></tr>
<tr><td>4 (e) (ii)</td><td>$[Ni(H_2O)_6]^{2+}$ = octahedral (1) ;
$[Ni(dimethylglyoxime)_2]^{2+}$= tetrahedral / square planar (1) ;</td><td>2</td></tr>
<tr><td colspan="2">Total mark</td><td>14</td></tr>
</table>

Question	Expected answers	Marks
5 (a) (i)	lone pair of electrons on N (1) **;** can accept proton/hydrogen ion/H^+ (1) **;**	**2**
5 (a) (ii)	water (1) **;**	**1**
5 (a) (iii)	 *one mark for* ***both hydrogen bonds*** (1) **;** *one mark for* ***both lone pairs*** (1) **;** ***partial charges*** *correct* (1) **;** If only one interaction shown but all three components are correct then give 2 marks.	**3**
5 (a) (iv)	<u>double</u> helix (1) **;**	**1**
5 (b) (i)	*any* ***two*** *from the following* ***four*** *points* smaller chain length / M_r (1) **;** different bases (1) **; do not allow** 'complementary bases'; RNA has single chain (1) **;** different sugar in chain (1) **;**	**2**
5 (b) (ii)	*any* ***two*** *from* <u>hydrogen</u> <u>bonds</u> between DNA strands break (1) **;** DNA divides / unwinds / uncoils / chains separate (1) **;** each strand acts as a template for new strand AW (1) **;**	**2**
	Total mark	**11**

Question	Expected answers	Marks
6 (a)	pentyl (1) **;** ethanoate (1) **;**	**2**
6 (b) (i)	K_c = [**P**].[water] / [acid].[alcohol] (1) **;** at equilibrium [**P**] = [water] (1) **;** $[\mathbf{P}]^2$= 4.15 x (1.06) x (1.06) (1) **;** [**P**] = 2.16 mol dm^{-3} answer must be to *3 sfs* (1) **;** ecf for incorrect equation.	**4**
6 (b) (ii)	product / compound **P** lost (1) **;** concentrations of reactants will be less (1) **;** K_c is unchanged (1) **;** does not change with concentration / only changes with temperature / ratio of concentrations remain the same AW (1) **;** **allow** 1 mark for loss of volatile component causing an increase in temperature.	**4**
6 (b) (iii)	conc. sulphuric acid (1) **;**	**1**
	Total mark	**11**

2854 Chemistry by Design

Question	Expected Answers	Marks
1 (a) (i)	ether (**allow** ethyl ether / ethoxy / alkoxy) (1) **;**	**1**
1 (a) (ii)	(secondary) amide (1) **;**	**1**
1 (a) (iii)	(primary) amine (1) **;**	**1**
1 (b) (i)	105 – 110 (1) **;**	**1**
1 (b) (ii)	120 (1) **;**	**1**
1 (c)	iron(III) (chloride) (1) **;** pink / purple / violet / mauve colour (1) **;** *mark independently*	**2**
1 (d) (i)	hydrolysis (1)**;**	**1**
1 (d) (ii)	(named/formula) strong alkali / (named / formula) moderately concentrated / dilute mineral acid (1) **;** reflux (1) **;** **allow** concentrated HCl any additional reagents **CON** first mark award second mark, provided alkali **or** acid incl conc sulphuric mentioned.	**2**
1 (e)	**IR** any **one** similar bond (1) **;** any **one** different bond (1) **;** **IGNORE** groups (eg 'amide') , except for arene / benzene *Mark first bond / absorbance range pair, ignore others* Absorbance ranges of **both** (correct) bond OR group given (1) **;** *IR similar*: C–O (1050-1300); C–H (2850-2950/3000-3100); arene (several peaks in range 1450 – 1650) *IR difference*: C=O (1630-1700) in phenacetin; N–H (3500 in phenacetin **OR**; 3300-3500 in phenetidine) **NMR** phenacetin: 6 peaks: 3:1:2:2:2:3 {**allow** 5 peaks: 3:1:4:2:3}(1) **;** **allow** any order – count up if individual values given paraphenetidine *(mark first answer and ignore others*) 5 peaks / one less peak (allow one less than an incorrect answer for phenacetin) / 2 replaces 3:1 / 0.5 – 6 in spectrum / 5-12 or 2.2 not in spectrum (1) **;**	**5**

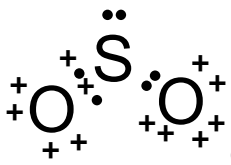
Question	Expected Answers	Marks
1 (f) (i)	all of structure indicated, apart from H or O–H (1) **;**	**1**
1 (f) (ii)	part of molecule / group (1) **;** that / bonds / fits to receptor / active site (1) **;** responsible for pain killing / AW (1) **;**	**3**
1 (g)	idea of shape of <u>active site</u> or molecule fitting / bonding / binding into <u>active site</u> (1) **;** mention of ether / $–OC_2H_5$ or phenol / –OH group (in terms of fitting / not fitting / bonding) (1) **;**	**2**
	Total mark	**21**

Question	Expected Answers	Marks
2 (a) (i)	$1s^2 2s^2 2p^6$ (1) **;** **allow** capital letters and subscripts	**1**
2 (a) (ii)	$Al^{3+}(aq) + 3OH^-(aq) \rightarrow Al(OH)_3(s)$ equation (1) **;** *[some Al ion]*(aq) + [x]OH^-(aq) $\rightarrow$ $Al(OH)_y(s)$ (1) **;** x and y can be any integers **allow** second mark for NaOH(aq) giving $Na^+(aq)$ in correct equation	**2**
2 (a) (iii)	ligand exchange (1) **;**	**1**
2 (a) (iv)	OH turned to O^- / O^- present (1) **;** attracted (more strongly) to Al^{3+} * / form ionic bonds with Al^{3+} * (AW) (1) **;** ***allow** 'aluminium' or positive ion	**2**
2 (a) (v)	add (a specified mineral) acid (1) **;** **allow** conc sulphuric (**allow** a polydentate ligand or a transition metal ion)	**1**
2 (b) (i)	crude oil / coal tar (1) **;**	**1**
2 (b) (ii)	condensation (1) **;**	**1**
2 (b) (iii)	ketone (1) **;** **allow** carbonyl	**1**
2 (b) (iv)	<u>concentrated</u> sulphuric acid (allow conc or c.) (1) **;**	**1**
2 (b) (v)	M_r values: compound A, 106; alizarin, 240 (stated or used) (1) **;** (kilo)moles of compound A (53 / M_r) (1) **;** (53/M_r) x M_r alizarin and evaluation (120kg) (1) **;** ecf *23.4 kg scores 2*	**3**
2 (c)	*up to **three** from:* electrons excited / move up energy levels (1) **;** 'd subshells' **CON**s this mark only absorbs (visible) light (1) **;** difference in energy level proportional to frequency / (Δ)E = hv (1) **;** complementary colour transmitted / reflected (NOT emitted) (1) **;** ***and** up to **two** from:* energy levels closer / frequency absorbed lower because of delocalisation (1) **;** delocalisation / chromophore / functional groups varies with different dyes (1) **;** <u>difference</u> in energy levels / ΔE differs with different dyes (1) **;** maximum of two marks for 'electrons dropping **and** giving out light' **QWC** logical, use of three of the following (2) **;** using two of following (1) **;** electron **;** excited **;** frequency/wavelength **;** complementary **;** delocalisation **;** transmitted **;** visible **;**	**4** **2**

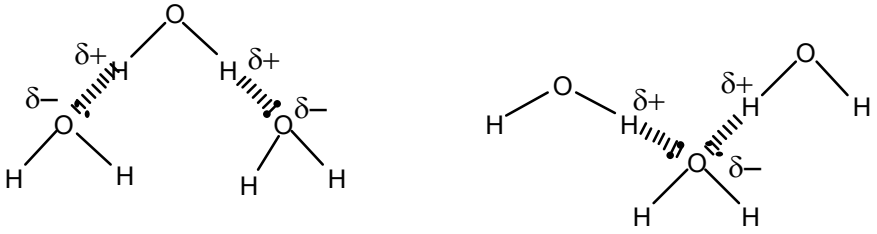
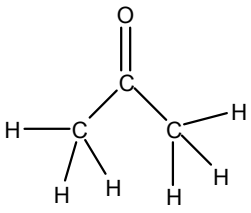
Question	Expected Answers	Marks
2 (d)	not attached to any particular pair of atoms / spread over several / all C atoms (1) **;** each C has one electron (not involved in bonding to C or H) (1) **;** arranged in <u>rings</u> above and below ring /molecule *[allow diagram]* (1) **;**	**3**
2 (e) (i)	positive ion / particle / molecule with partial positive charge attracted to a negatively charged / electron dense region / carbon (1) **;** reacts by accepting a pair of electrons (to form a covalent bond) (1) **;** (a substitution is where) one group / atom is exchanged for another (1) **;**	**3**
2 (e) (ii)	*any **three** from **four*** polarises Br_2 / forms $Br^{\delta+}$ / **allow** forms Br^+ (1) **;** $Br^+/Br^{\delta+}$ attacks/ accepts electrons from (benzene) / is the electrophile (1) **;** Provides a <u>route/ pathway</u> of lower activation enthalpy/energy (1) **;** $FeBr_3$ restored at end (1) **C** *mark independently*	**3**
2 (e) (iii)	$C_6H_6 + Br_2 \rightarrow C_6H_5Br + HBr$ (1) for LHS (allow skeletal representation of benzene [or with –H]) **;** (1) for RHS (depends on first marking point) **;**	**2**
	Total mark	**31**

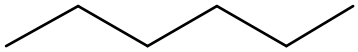
Question	Expected Answers	Marks
3 (a) (i)	NH_3 –3 (1) **;** N_2O +1 (1) **;** *max 1 for signs after numbers*	**2**
3 (a) (ii)	oxygen (1) **;** oxidation state decreases/ goes from 0 to –2 (1) **;** **ignore** gain of electrons	**2**
3 (b)	temp – effect of temperature on yield (with reason [exo / endothermic]) (1) **;** effect of temperature on rate (goes faster / slower) [**ignore** reasons] (1) **;** so medium / moderate / compromise [idea of balance] / AW / temp (1) **;** **ignore** any values quoted pressure: *any **three** from:* equal mols so no change in yield (1) **;** higher pressure, faster (ORA) (1) **;** high pressure may be expensive / dangerous (1) **;** 1 atm / few atm (allow up to 5) / low / moderate pressure/ compromise rate/expense or danger (1) **;** **QWC:** at least two sentences; only one error in spelling, punctuation or grammar in whole response (1) **;**	**6** **1**
3 (c)	25 – 300 atm (1) **;** *or a figure within this range* 300 – 500 ^oC (1) **;** *or a figure within this range* iron catalyst (1) **;**	**3**
3 (d) (i)	right – left (1) **;** (3 x 189) + 220 – (2 x 205) – (2 x 192) = –7 (1) **;** completely correct the only ecf is that 7 or +7 scores 1 overall	**2**
3 (d) (ii)	equal no of gas mols on each side (1) **;** small value (1) **;** *dependent on first mark* **ignore** refs to sign	**2**

Question	Expected Answers	Marks
3 (d) (iii)	$\Delta S^{\ominus}_{surr}$ = 552000/298 = (+)1852 (1) **;** *stated or implied* (**allow** 1.85(2) if kJ units shown) $\Delta S^{\ominus}_{tot}$ = –7 + 1852* = +1845 (1) **;** *correct expression and evaluation(with sign)* **allow** ecf from 3d(i) and first mpt [–5/–5.2/–5.15 scores 1 overall] ***allow** rounded to 1850 giving +1843	**2**
3 (e) (i)	*any **two** from:* more moles of gas / increase in volume/ pressure (1) **;** exothermic / gas becomes hotter /(reaction) provides energy / AW (1) **;** low activation energy / enthalpy **or** does not need much energy to decompose (1) **;**	**2**
3 (e) (ii)	(N_2O decomposes to give) oxygen (AW) (1) **;** because of the temperature of/ energy supplied by splint / AW / (**allow** N_2O decomposes at low temperatures) (1) **;**	**2**
	Total mark	**24**

Question	Expected Answers	Marks
4 (a) (i)	water / dilute acid / brine / [any] hydrocarbon/ natural gas / petrol (1) **;**	**1**
4 (a) (ii)	when burnt / used as fuels (1) **;** SO_2 / sulphuric acid produced (1) **;** *mark separately* acid rain / an effect of acid rain (1) **;** *depends on either of first two marking points being scored*	**3**
4 (b) (i)	2-aminoethanol/ 2-aminoethan-1-ol / 1-aminoethan-2-ol (1) **;** **allow** 2-hydroxyethylamine	**1**
4 (b) (ii)	$-NH_3^+$ / S^{2-} (1) **;**	**1**
4 (c) (i)	incompletely ionised / incompletely dissociated / in equilibrium (with water) (1) **;** **ignore** references to ability to donate protons	**1**
4 (c) (ii)	$[H^+]$ $[HS^-]$ / $[H_2S]$ (1) **;**	**1**
4 (c) (iii)	$[H^+] = \sqrt{(0.1 \times 8.9 \times 10^{-8})}$ (1) **;** $(= 9.43 \times 10^{-5}$ (mol dm^{-3})) pH = – log$[H^+]$ (stated or implied) (1) **;** = 4.03 (1) **;** **allow** 4.0 or 4.025 or ecf from first mpt.	**3**
4 (d) (i)	$[Hg^{2+}]$ $[S^{2-}]$ charges on ions correct (wherever stated) (1) **;** indication of concentration of Hg ion times concentration of S ion (1) **;**	**2**
4 (d) (ii)	$[Hg^{2+}] = \sqrt{(4.0 \times 10^{-53})}$ $(= 6.32 \times 10^{-27}$ (mol dm^{-3})) (1) **;** 'ans to 1st mpt' x 6.0×10^{23} and evaluated $(= 3.8 \times 10^{-3}$ (ions dm^{-3})) (1) **;** *if first mpt not apparent, allow some number (not 1) x L (and evaluated) for 1 mark*	**2**
4 (d) (iii)	6.32×10^{-27} (ecf from **(d)(ii)** x 233 = 1.5×10^{-24} (g dm^{-3}) (1) **;**	**1**
4 (e)	 correct O with dative covalent bond (1) **;** rest correct (1) **;** correct expanded octet with two double bonds scores 1 (**ignore** shape of molecule)	**2**

Question	Expected Answers	Marks
4 (f)	0.01 x 98/32 = 0.031 (kg) correct M_r values (1) **;** rest of calculation & evaluation (ecf) (1) **;** 2sf (provided some calculation shown)(1) **;**	**3**
4 (g)	ionic (1) **;** **broken:** ionic (1) **;** hydrogen bonds (1) **;** **made:** ion-dipole (1) **;** **allow** other descriptions eg hydration of ions broken approx equal to made / AW (1) **;** ions move to electrodes / ions free to move (1) **;**	**6**
	Total mark	**27**

Question	Expected Answers	Marks
5 (a)	(2260 x 18 /1000 =) +40.7 (1) **;** **allow** absence of + sign, **allow** 40.68 **allow** answer given in part **(a)** and not in table.	**1**
5 (b) (i)	energy absorbed by evaporation (1) **;** released on condensation (1) **;** *mark independently*	**2**
5 (b) (ii)	ratio energy / mass is high / AW (1) **;**	**1**
5 (c) (i)	Either of these, or a mixture  correct pair of hydrogen bonds shown (1) **;** (**ignore** other *correct* hydrogen bonds; incorrect hydrogen bonds are **CON**) for **both** hydrogen bonds: correct partial charges (1) **;** lone pair along bond (1) **;** straight O–H–O (1) **;**	**4**
5 (c) (ii)	it only forms one / fewer hydrogen bond per molecule (1) **;** less energy is needed to break / because it only contains one Hδ^+ / AW (1) **;** **ignore** references to M_r and other imf. ORA throughout	**2**
5 (d) (i)	 (1) **; ignore** incorrect bond angles	**1**
5 (d) (ii)	permanent (dipole) – permanent dipole (1) **;** **do not allow** abbreviations no hydrogen attached to the oxygen atom / electronegative atom / electron withdrawing group (1) **;**	**2**

Question	Expected Answers	Marks
5 (e) (i)	 (1) ;	1
5 (e) (ii)	any **three** from: M_r / no. of electrons of hexane is larger / hexane is long(er) (1) ; hexane is less branched (ora) (1) ; more / stronger instantaneous dipole-induced dipole forces (1) ; compensate for permanent dipole-permanent dipole / pd-pd stronger than id-id for molecules of similar size / AW (1) ; **allow** abbreviations to imf names here. If 'id-id' given as answer to **(d)(ii),** allow one (in total) mark for ecf here	3
	Total mark	17

Grade Thresholds

Advanced GCE Chemistry (Salters) (3887/7887)
January 2010 Examination Series

Unit Threshold Marks

Unit		Maximum Mark	a	b	c	d	e	u
2849	Raw	90	72	64	56	49	42	0
	UMS	90	72	63	54	45	36	0
2854	Raw	120	80	72	64	56	49	0
	UMS	120	96	84	72	60	48	0
2855	Raw	90	76	68	60	52	44	0
	UMS	90	72	63	54	45	36	0

Specification Aggregation Results

Overall threshold marks in UMS (ie after conversion of raw marks to uniform marks)

	Maximum Mark	A	B	C	D	E	U
3887	300	240	210	180	150	120	0
7887	600	480	420	360	300	240	0

The cumulative percentage of candidates awarded each grade was as follows:

	A	B	C	D	E	U	Total Number of Candidates
3887	15.4	46.2	53.8	61.5	92.3	100.00	14
7887	15.7	42.5	76.1	91.5	97.5	100.0	332

346 candidates aggregated this series

For a description of how UMS marks are calculated see:
http://www.ocr.org.uk/learners/ums_results.html

Statistics are correct at the time of publication.

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