



**CHEMISTRY 2202
SAMPLE EXAMINATION
June, 2008**

ANSWER KEY

Note: Shaded items indicate a Core Lab or STSE outcome

PART I - Multiple Choice

Item	Answer	Level	SCO Page
1	C	1	24
2	A	1	24
3	D	1	26
4	C	2	26
5	A	1	26
6	D	3	28
7	D	2	30
8	B	2	30
9	C	2	30
10	B	1	34
11	D	1	32
12	A	1	32
13	A	1	32
14	A	1	34
15	D	2	32
16	A	2	32
17	B	2	36
18	B	1	48
19	C	1	56,70
20	B	2	58

Item	Answer	Level	SCO Page
21	C	2	58
22	D	2	60
23	D	2	60
24	C	1	58
25	A	2	62
26	D	3	62
27	C	1	62
28	A	2	64
29	B	1	70
30	D	1	68
31	B	2	64
32	A	1	84
33	A	1	92
34	B	2	88
35	B	1	104
36	B	1	104
37	A	2	104
38	C	1	96
39	B	3	106
40	B	3	108

PART II - Constructed Response

Item	Marks	Level	SCO Page	Answer
41(a)(i)	4	2	30	C_3H_3O
(a)(ii)	2	2	30	$C_6H_6O_2$
(b)(i)	3	2	32	28.4 g
(b)(ii)	2	2	34	<p>Answers will vary...</p> <ol style="list-style-type: none"> 1. Measure 28.4 g of $Na_2SO_4(s)$ on the <i>balance</i> in the <i>weighing dish</i>. 2. Transfer the solid to the <i>beaker</i> with water. 3. Stir with the <i>glass rod</i> to dissolve solid. 4. Decant the solution into the <i>volumetric flask</i> and fill up to the mark with water. 5. Invert solution several times.
(c)	4	2	40	19.5 g
(d)	7	3	26, 40	$Na_2SO_3(aq)$
(e)	5	2	40	89.7 g
42(a)(i)	2	2	60	
42(a)(ii)	2	2	60	
42(a)(iii)	1	2	60	pyramidal
42(a)(iv)	1	2	60	polar
42(b)	5	3	60, 62	
(c)(i)	3	2	62, 66	<p>yes, yes, yes yes, yes, yes yes, no, no</p>

(c)(ii)	3	2	66	<p>Answers will vary...</p> <p>All molecules are pyramidal shaped and polar, thus all have Dipole-Dipole, taking this from being a determining factor.</p> <p>NHF_2 will have lowest LD, yet being the only one with HB, the strongest force, makes NHF_2 the highest boiling point. NCl_3 and NI_3 are both polar (have DD) while neither have HB. So, between these two molecules, NI_3 would have many more electrons and thus be stronger in LD force than NCl_3. NI_3 has the second strongest set of forces by comparison, and the second highest boiling point. This leaves NCl_3 as the lowest boiling point.</p>
43(a)(i)	2	2	92, 94	2 - ethyl- 2 - methylhexane
43(a)(ii)	2	2	92, 94	4 - ethyl - 5 - methyl - 2 - hexene
43(a)(iii)	2	2	92, 94	<i>cis</i> - bromochloroethane
(b)(i)	2	2	90,92,104	$\text{CH}_3\text{-CH}_2\text{-}\overset{\text{O}}{\parallel}\text{C}\text{-O-CH}_2\text{-CH}_3$
(b)(ii)	2	2	90,92,104	$\text{CH}_3\text{-}\overset{\text{Cl}}{\text{C}}\text{-}\overset{\text{O}}{\parallel}\text{C}\text{-CH}_2\text{-CH}_2\text{-CH}_3$
(c)(i)	1	2	96, 102	addition
(c)(ii)	2	2	96, 102	$\begin{array}{c} \text{Cl} \quad \text{Cl} \\ \quad \\ \text{H}-\text{C}-\text{C}-\text{H} \\ \quad \\ \text{Cl} \quad \text{Cl} \end{array}$
(d)	3	3	96,106	<p>Compound A</p> $\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{H}-\text{C}-\text{C}-\text{OH} \\ \quad \\ \text{H} \quad \text{H} \end{array}$ <p>Compound B</p> 