



**CHEMISTRY 2202  
FINAL EXAMINATION  
June, 2008**

## ANSWER KEY

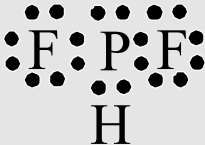
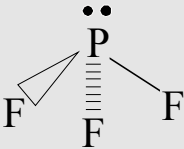
*Note: Shaded items indicate a Core Lab or STSE outcome*

### PART I - Multiple Choice

Item	Answer	Level	SCO Page
1	B	1	24
2	C	1	24
3	A	1	24
4	C	2	26
5	A	2	26
6	D	3	28
7	B	2	30
8	B	2	30
9	D	3	30
10	A	1	30
11	B	1	32
12	B	1	32
13	D	1	32
14	A	2	32
15	B	2	32
16	D	2	32
17	B	2	36
18	A	1	46
19	B	1	56,70
20	A	1	58

Item	Answer	Level	SCO Page
21	C	2	58
22	B	2	60
23	D	2	60
24	C	2	60
25	A	1	58
26	C	3	62
27	A	1	62
28	B	2	64
29	C	2	70
30	C	1	70
31	A	2	64
32	A	1	84
33	B	2	92
34	C	2	94
35	C	1	104
36	B	1	104
37	C	2	106
38	B	1	94
39	C	3	106
40	C	1	108

## PART II - Constructed Response

Item	Marks	Level	SCO Page	Answer
41(a)(i)	4	2	30	$C_2H_5$
(a)(ii)	2	2	30	$C_4H_{10}$
(b)(i)	3	2	32	25.0 mL or 0.0250 L
(b)(ii)	2	2	34	Answers will vary... 1. Pipette 25.0 mL of NaCl(aq) from the <i>beaker</i> . 2. Drain the solution into the 500.0 mL <i>volumetric flask</i> . 3. Add water up to the mark with the <i>eyedropper</i> . 4. Cap the flask and invert several times to ensure a homogenous mixture is created.
(c)(i)	4	2	40	0.647 g
(c)(ii)	2	2	40	79.7 %
(d)	3	2	32	44.7 L
(e)	3	3	40	5
(f)	4	3	32	Ca
42(a)(i)	2	2	60	
42(a)(ii)	2	2	60	
(a)(iii)	1	2	60	pyramidal
(a)(iv)	1	2	60	polar
42(b)(i)	3	3	62, 66	yes, yes, yes yes, yes, no no, yes, no
(b)(ii)	3	2	62, 66	Answers will vary... B has highest boiling point because it contains hydrogen bonding. Molecule A and C do not contain hydrogen bonding.

(c)	3	3	66	
(d)	2	3	66, 70	<p>Answers will vary...</p> <p>Conductivity: NaCl(aq) is ionic and conducts electricity; C<sub>12</sub>H<sub>22</sub>O<sub>11</sub> is molecular and does not conduct electricity</p> <p>Melting point: C<sub>12</sub>H<sub>22</sub>O<sub>11</sub> is lower than NaCl(aq)</p> <p>Precipitates: NaCl(aq) has Cl<sup>-</sup> (aq) which may form ppt if Ag<sup>+</sup> (aq) is added. C<sub>12</sub>H<sub>22</sub>O<sub>11</sub> contains no ions and will not form a ppt with Ag<sup>+</sup> (aq)</p>
43(a)(i)	2	2	92, 94	3,3 – dimethylhexane
43(a)(ii)	2	2	92, 94	1 – ethyl – 2 - methylbenzene
43(a)(iii)	2	2	92, 94	2 – bromo – 2 – butene
(b)(i)	2	2	90,92,104	
(b)(ii)	2	2	90,92,104	
(c)(i)	1	2	96, 102	substitution
(c)(ii)	2	2	96, 102	

(d)	3	3	96,106	<p style="text-align: center;">Compound X</p> $  \begin{array}{c}  \text{H} \quad \text{O} \\    \quad    \\  \text{H}-\text{C}-\text{C}-\text{OH} \\    \\  \text{H}  \end{array}  $ <p style="text-align: center;">carboxylic acid</p>	<p style="text-align: center;">Compound Y</p> $  \begin{array}{c}  \text{O} \quad \text{H} \\     \quad   \\  \text{H}-\text{C}-\text{O}-\text{C}-\text{H} \\  \quad   \\  \quad \text{H}  \end{array}  $ <p style="text-align: center;">ester</p>
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