

## Chem 250

## In-class Quiz #1

This exam is composed of **17** questions.

*As discussed in the course syllabus, honesty and integrity are absolute essentials for this class. In fairness to others, dishonest behavior will be dealt with to the full extent of University regulations.*

*I hereby state that all answers on this exam are my own and that I have neither gained unfairly from others nor have I assisted others in obtaining an unfair advantage on this exam.*

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Signature

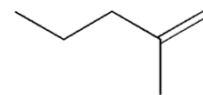
## PERIODIC TABLE OF THE ELEMENTS

1A	2A	3B	4B	5B	6B	7B	8B	8B	8B	1B	2B	3A	4A	5A	6A	7A	8A
1 <b>H</b> 1.008																	2 <b>He</b> 4.003
3 <b>Li</b> 6.939	4 <b>Be</b> 9.012											5 <b>B</b> 10.81	6 <b>C</b> 12.01	7 <b>N</b> 14.01	8 <b>O</b> 16.00	9 <b>F</b> 19.00	10 <b>Ne</b> 20.18
11 <b>Na</b> 22.99	12 <b>Mg</b> 24.31											13 <b>Al</b> 26.98	14 <b>Si</b> 28.09	15 <b>P</b> 30.97	16 <b>S</b> 32.07	17 <b>Cl</b> 35.45	18 <b>Ar</b> 39.95
19 <b>K</b> 39.10	20 <b>Ca</b> 40.08	21 <b>Sc</b> 44.96	22 <b>Ti</b> 47.90	23 <b>V</b> 50.94	24 <b>Cr</b> 52.00	25 <b>Mn</b> 54.94	26 <b>Fe</b> 55.85	27 <b>Co</b> 58.93	28 <b>Ni</b> 58.71	29 <b>Cu</b> 63.55	30 <b>Zn</b> 65.39	31 <b>Ga</b> 69.72	32 <b>Ge</b> 72.61	33 <b>As</b> 74.92	34 <b>Se</b> 78.96	35 <b>Br</b> 79.90	36 <b>Kr</b> 83.80
37 <b>Rb</b> 85.47	38 <b>Sr</b> 87.62	39 <b>Y</b> 88.91	40 <b>Zr</b> 91.22	41 <b>Nb</b> 92.91	42 <b>Mo</b> 95.94	43 <b>Tc</b> (99)	44 <b>Ru</b> 101.1	45 <b>Rh</b> 102.9	46 <b>Pd</b> 106.4	47 <b>Ag</b> 107.9	48 <b>Cd</b> 112.4	49 <b>In</b> 114.8	50 <b>Sn</b> 118.7	51 <b>Sb</b> 121.8	52 <b>Te</b> 127.6	53 <b>I</b> 126.9	54 <b>Xe</b> 131.3
55 <b>Cs</b> 132.9	56 <b>Ba</b> 137.3	57 <b>La</b> 138.9	72 <b>Hf</b> 178.5	73 <b>Ta</b> 181.0	74 <b>W</b> 183.8	75 <b>Re</b> 186.2	76 <b>Os</b> 190.2	77 <b>Ir</b> 192.2	78 <b>Pt</b> 195.1	79 <b>Au</b> 197.0	80 <b>Hg</b> 200.6	81 <b>Tl</b> 204.4	82 <b>Pb</b> 207.2	83 <b>Bi</b> 209.0	84 <b>Po</b> (209)	85 <b>At</b> (210)	86 <b>Rn</b> (222)
87 <b>Fr</b> (223)	88 <b>Ra</b> 226.0	89 <b>Ac</b> 227.0	104 <b>Unq</b> (261)	105 <b>Unp</b> (262)	106 <b>Unh</b> (263)	107 <b>Uns</b> (262)	108 <b>Uno</b> (265)	109 <b>Une</b> (266)									

1. (15 points) Draw the structure for 3,4-dimethyl-2-pentanol

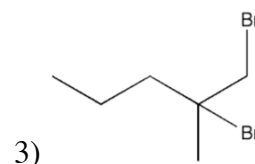
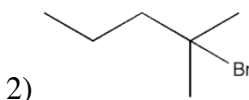
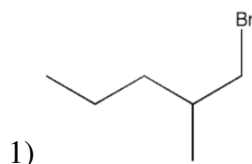
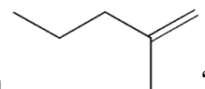
2. (15 points) Draw the structure for ortho-chlorotoluene

3. (5 points) What is the chemical formula for the molecule at right?



- 1)  $C_6H_8$       2)  $C_6H_{10}$       3)  $C_6H_{12}$       4)  $C_6H_{14}$       5)  $C_6H_{16}$

4. (5 points) What is the product of the reaction of HBr with



5. (5 points) What is the functional group in  $CH_3CHO$ ?

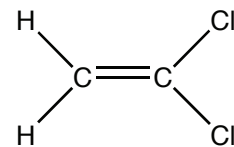
- 1) aldehyde    2) ether      3) alcohol    4) carboxylic acid    5) ketone

6. (5 points) What is the functional group in  $CH_3COCH_3$ ?

- 1) aldehyde    2) ether      3) alcohol    4) carboxylic acid    5) ketone

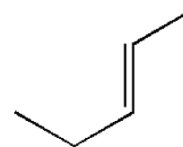
7. (5 points) The molecule at right is

- 1) a cis isomer      2) a trans isomer      3) not an isomer



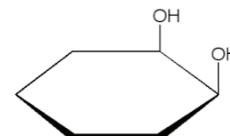
8. (5 points) The molecule at right is

- 1) a cis isomer      2) a trans isomer      3) not an isomer



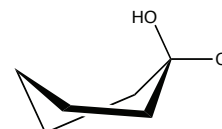
9. (5 points) The molecule at right is

- 1) a cis isomer      2) a trans isomer      3) not an isomer



10. (5 points) In the molecule at right the chlorine is in what position?

- 1) axial      2) equatorial      3) cis      4) trans

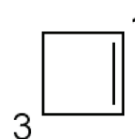


11. (5 points) Which molecule below is more reactive, in general?

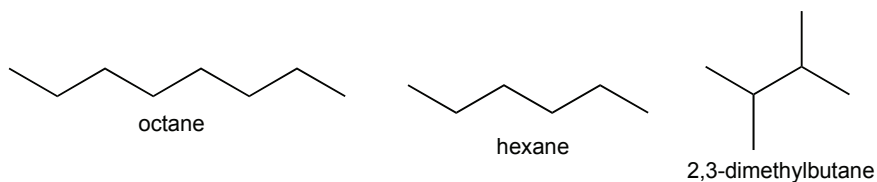
- 1)      2)      3) they have the same reactivity

12. (5 points) In the molecule at right, the ideal bond angle around the 3-carbon is:

- 1)  $120^\circ$       2)  $109^\circ$       3)  $90^\circ$       4)  $180^\circ$

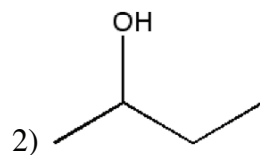
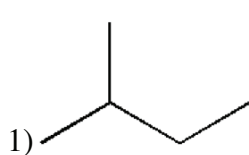


13. (5 points) Which molecule below has the highest boiling point?



- 1) octane      2) hexane      3) 2,3-dimethylbutane

14. (5 points) Which molecule below has the lower boiling point?



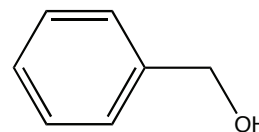
3) they have about the same boiling point

15. (5 points) In the molecule at right, the alcohol is classified as:

1) primary

2) secondary

3) tertiary

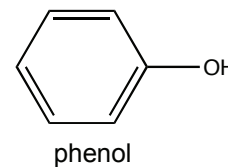
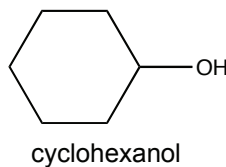


16. (5 points) Which is the stronger acid?

1) cyclohexanol

2) phenol

3) they are the same



17. (5 bonus points) What is the catalog number for this class?

1) 111

2) 250

3) 86

4) 3.14159

5) 68.6 g