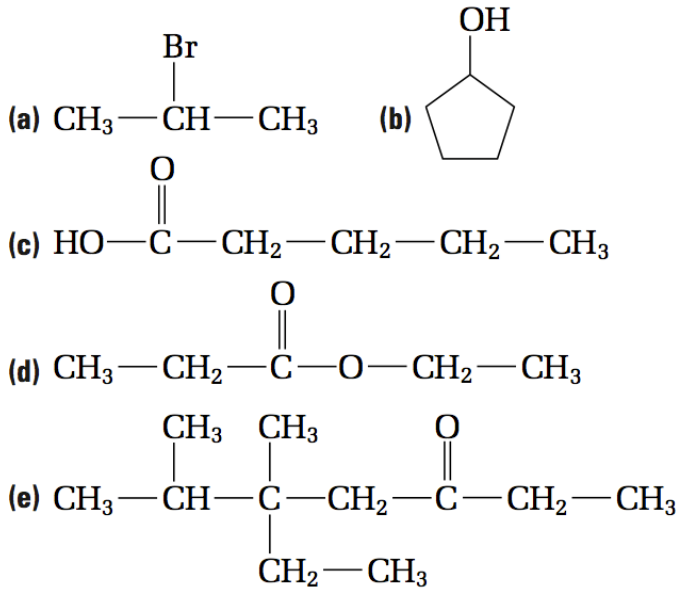
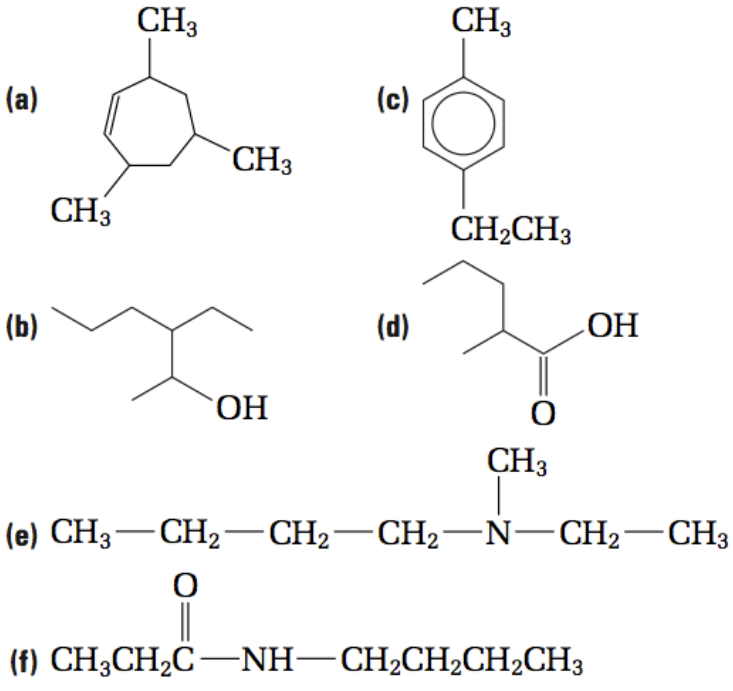
G12 Chemistry: Class 2 Homework

1. Write the IUPAC name for each compound: **[5 marks]**



2. Name the following compounds. **[6 marks]**



3. Consider the compounds $CH_3CH_3CH_2OH$, CH_3CH_2COOH and CH_3COOCH_3. Which compound has the highest boiling point? Explain your reasoning. **[3 marks]**

4. Identify the family that each organic compound belongs to and name the compound. **[8 marks]**

(a) $CH_3CH_2CONH_2$

(b) $CH_3CH_2CH(CH_3)CH_2CH_2COOH$

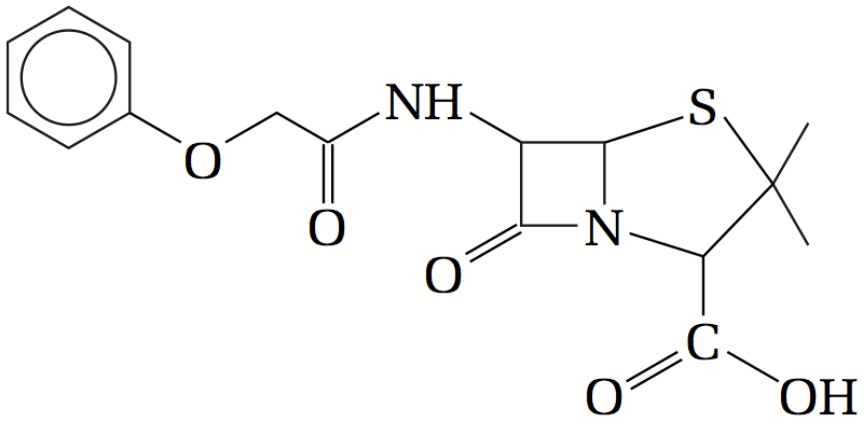
(c) $CH_3CH_2C(CH_3)_2CH_2CHO$

(d) CH_3COOCH_3

	Family	Name
a)		
b)		
c)		
d)		

5. Draw and name one primary amide, one secondary amide and one tertiary amide with the molecular formula $C_6H_{13}ON$. **[6 marks]**

6. Penicillin V is an antibiotic with the following structure. Circle and label the functional groups in the molecule. **[4 marks]**



7. Draw a line diagram for each compound. **[12 marks]**

a) 3,4-dimethylheptanoic acid

b) 3-bromo-3-chloropent-1-yne

c) N-ethyl-2,2-dimethyl-3-octanamine

d) N-ethyl-N-methylhexanamide

e) 1,3-dibromo-5-chlorobenzene

f) cyclobutanol

g) 2-methoxypentane

h) para-dimethylbenzene

i) 4-propylheptanal

j) 3,3-dimethyl-2-hexanamine

k) methyl butanoate

l)2-methyl-3-octanone

8. Suppose that you are working with five unknown compounds in a chemistry laboratory. Your compounds are ethane, ethanol, methoxymethane, ethanamine, and ethanoic acid. Use the following table of observations to identify each unknown compound and draw the diagram. **[10 marks]**

Compound	Solubility in water	Hydrogen bonding	Boiling point	Odour	Molecular polarity
A	infinitely soluble	strong	17°C	fishy	polar
B	not soluble	none	−89°C	odourless	non-polar
C	soluble	accepts hydrogen bonds from water, but cannot form hydrogen bonds between its molecules	−25°C	sweet	polar
D	infinitely soluble	very strong	78°C	sharp, antiseptic smell	very polar
E	infinitely soluble	extremely strong	118°C	sharp, vinegar smell	very polar

	Compound	Diagram
A		
B		
C		
D		
E		