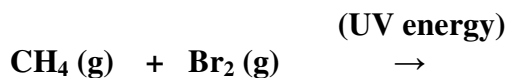
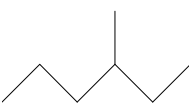


**Organic Chemistry  
Worksheet**

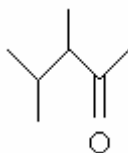
1. Draw the line structure for  $\text{CH}_3\text{CH}_2\text{CH}_3$ . What is the name of this organic compound?
2. Draw the line structure for 3-methyl octane. What is the molecular formula of this organic compound?
3. Write the structural formula of the product for the following reaction:



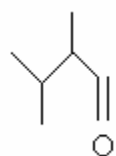
4. Name 

5. Sketch three isomers of  $\text{C}_6\text{H}_{14}$ . Name them.
6. Sketch two isomers of  $\text{C}_3\text{H}_7\text{Br}$ . Suggest a reaction to produce these.
7. Discuss the reactivity of alkanes. Write the balanced equation for the combustion of 2,2,4-trimethyl pentane.
  - 1.
  - 2.
  - 3.

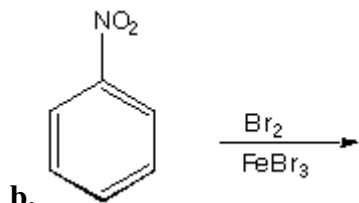
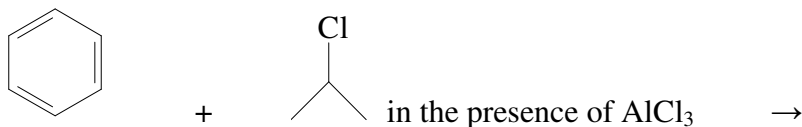
8. The molecule shown below is:



9. The molecule shown below is:



10. What is meant by an addition reaction? Give an example.
11. What is meant by a substitution reaction? Give an example of one.
12. Give the products of the reactions:
  - a.



13. The reaction of hydrochloric acid and ethene produces:



14. What is chiral? Sketch a molecule that contains three chiral carbons.

15. What polymer is formed by the reaction of a radical initiator and  $\text{CF}(\text{C}_6\text{H}_5)\text{CF}_2$ ?

16. How can nitrobenzene be created?

17. Treatment of an aromatic compound with concentrated sulfuric acid produces what?

18. Only alkyl benzenes undergo oxidation. Why?

19. Benzene does not behave like an unsaturated compound in addition reactions. Why not?

20. Benzene is a six membered ring, so why it does not exist in chair conformation.

21. Draw the structural formula of the following:

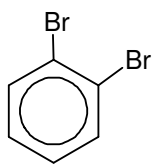
(i) 1-bromo-2-chloro-4-ethylbenzene

(ii) 2,4,6-trinitrotoluene

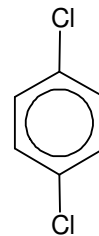
(iii) 2,4-dichlorophenol

22. Name the following compounds:

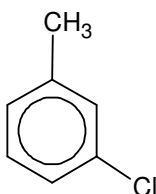
a.



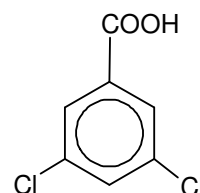
b.



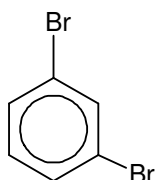
c.



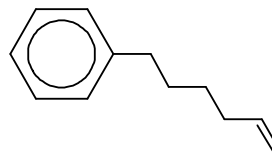
d.



e.



f.



**23. Which of these 2 compounds is more likely to be a liquid? Why?**

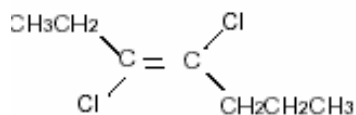
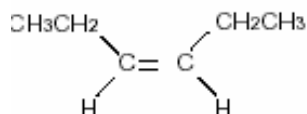
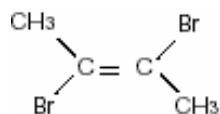


**24. Write and label the cis-trans isomers of the following:**

- a) 1,2-dichloroethene
- b) 2-butene
- c) 2,3- dibromo-2-pentene
- d) 3-hexene
- e) 1,2-difluoro-1-butene

**25. Write 6,6-dibromo-2-methyl-1-hexene as a *structural* formula and as a *condensed* formula:**

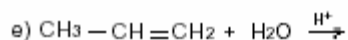
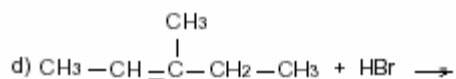
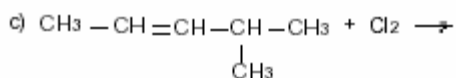
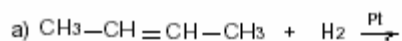
**26. Give the name of each of the following structures: (don't forget 'trans' or 'cis')**



27.

Name	Complete structural formula	Line formula	Condensed structural formula
1) 3-fluoro,1-butene			$\text{CH}_2=\text{CHCHFC}_2\text{H}_5$
2) 2-heptene			
3) 2,3-difluoro-1-pentene			
4) 6-iodo,4-methyl-2-decyne			
5) 4,4-dibromo-1,2-butandiol			
6)			
7)			
8)			
9)			
10)			
11)			
12)			
13)			$\text{CH}_3\text{CHFOHFC}=\text{CH}$
14)			$\text{C}(\text{OH})\text{Br}_2\text{CHF}(\text{CH}_2)_4\text{CH}_2\text{CH}_3$
15)			$\text{CH}_3(\text{CH}_2)_3\text{CH}=\text{CH}(\text{CH}_2)_2\text{CH}_3$

28. Write the structural formula of the product for each of the following alkene reactions:



29. For d) and e) above, what rule did you use to determine what goes where? \_\_\_\_\_

30. Write an equation, using structural or line formulas, and any catalysts for the following reactions:

a) hydrogenation of 2-methylpropene

b) addition of chlorine to 2-pentene (*halogenation*)

c) addition of hydrogen fluoride to 2-methyl-2-butene (*hydrohalogenation*)

d) hydration of 1-methylcyclobutene

e) addition of bromine to cyclopentene (*halogenation*)