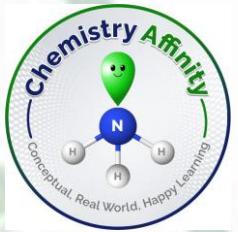


Worksheet-3

Fundamental Concepts of Organic Chemistry

Designed by
Dr. Anuradha Mukherjee

Worksheet-3 covers



- 1. IUPAC nomenclature for various compounds**
- 2. Drawing structures from IUPAC nomenclature and condensed form of organic molecules**
- 3. Finding out sigma and pi bonds and hybridization**
- 4. Identification of functional groups from organic molecules**

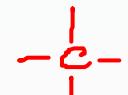
Solved question

Question: Indicate the number of bonds and lone pairs of electrons on each of the following atoms

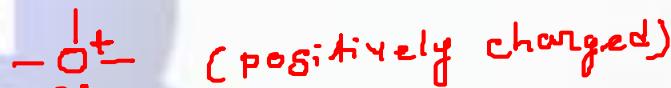


(1) A neutral carbon, (ii) a positively charged oxygen, (iii) A negatively charged nitrogen (iv) a positively charged carbon

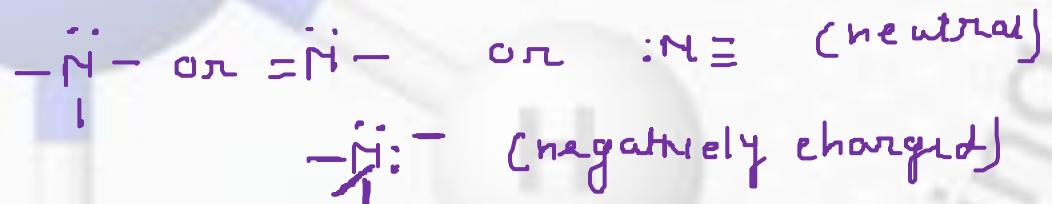
(i) A neutral carbon: Four bonds and no lone pairs



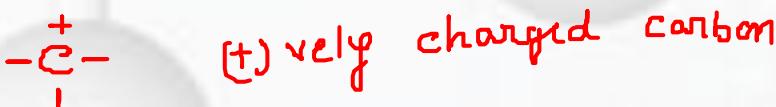
(ii) Three bonds and one lone pairs



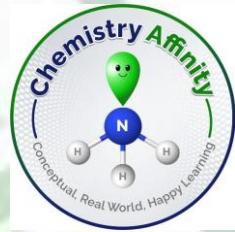
(iii) Two bonds and two lone pairs



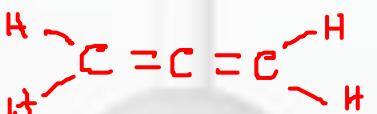
(iv) Three bonds and zero lone pairs



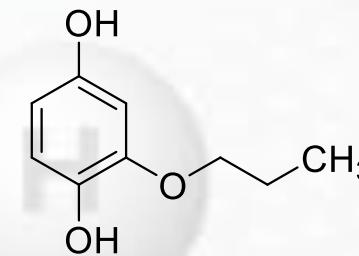
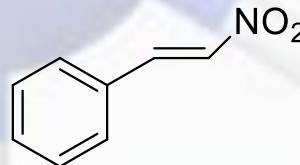
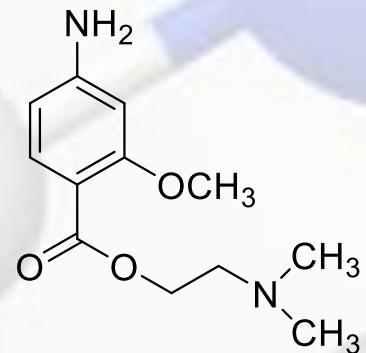
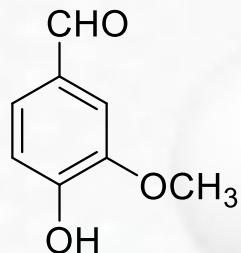
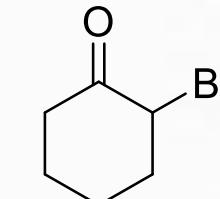
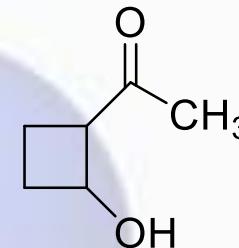
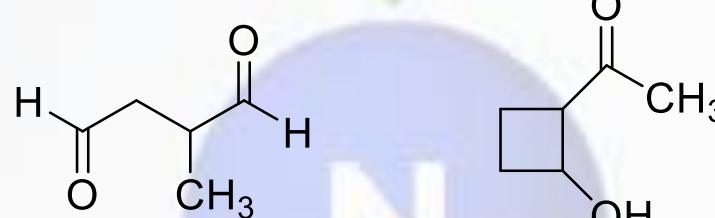
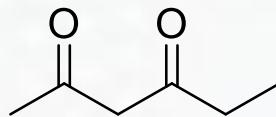
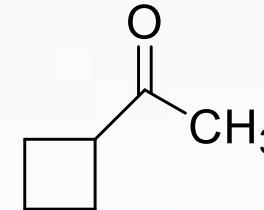
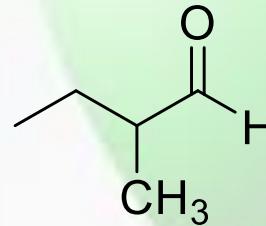
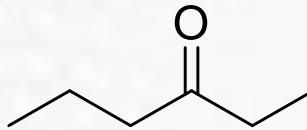
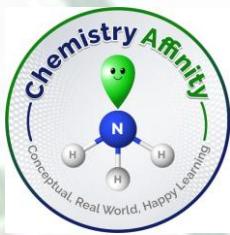
Check your learning



- 1. Which one of the following does not have sp^2 hybridized carbon?**
(i) acetone, (ii) acetonitrile, (iii) acetamide, (iv) acetic acid
- 2. Which of the following molecules has two sigma and two pi bonds?**
(i) C_2H_4 , (ii) N_2F_2 , (iii) $C_2H_2Cl_2$, (iv) HCN
- 3. Following molecule is known as allene (C_3H_4) What are the hybridization of carbon in this molecule? How many sigma and pi bonds are present here?**

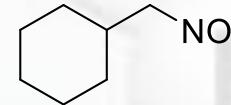
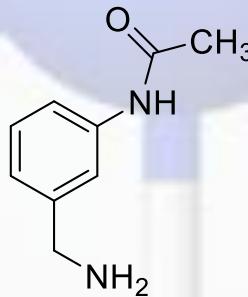
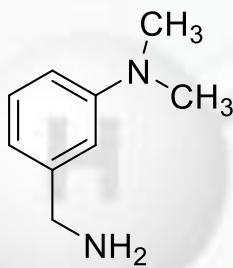
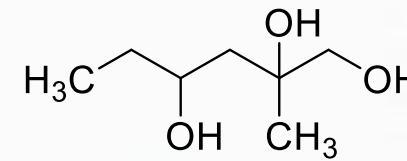
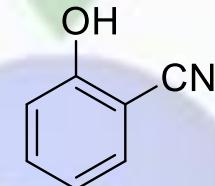
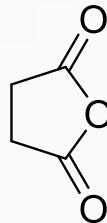
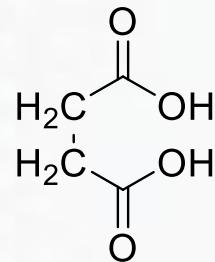
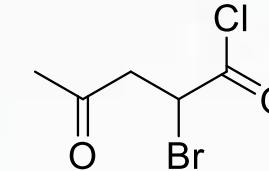
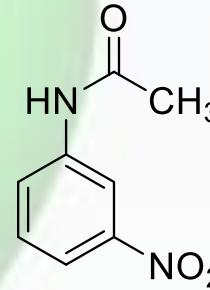
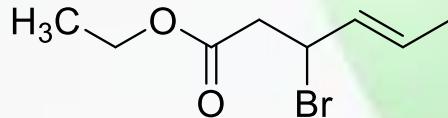
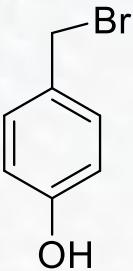
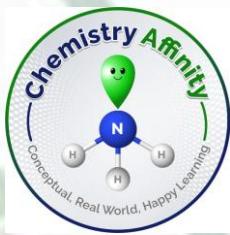


4. Identify functional groups



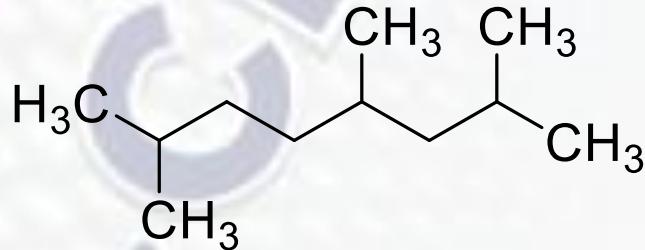
Continuation...

4. Identify functional groups

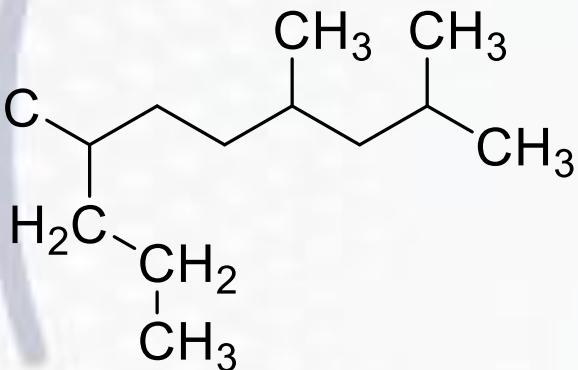


5. Write down IUPAC Nomenclature

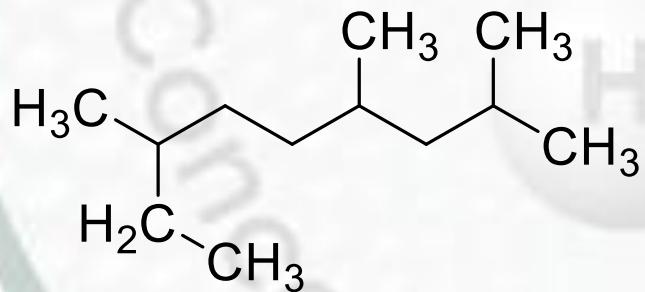
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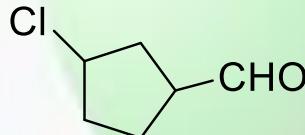
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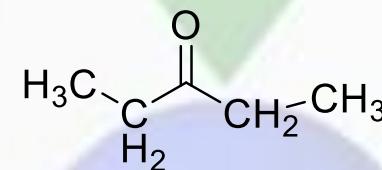
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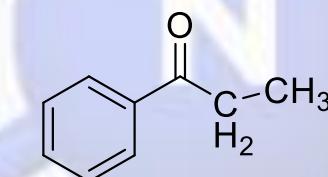
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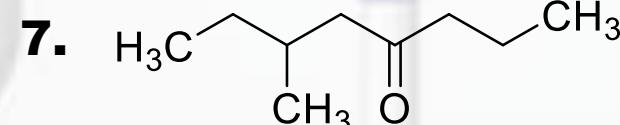
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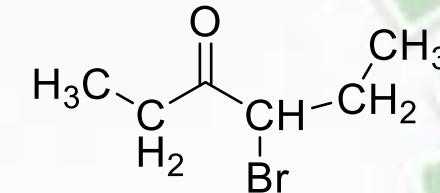
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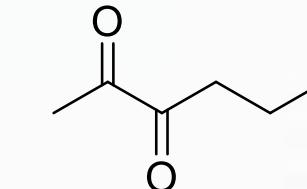
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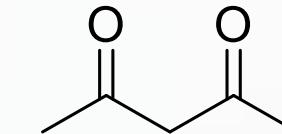
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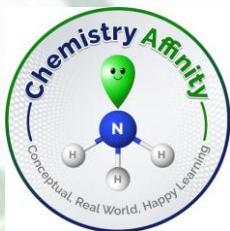
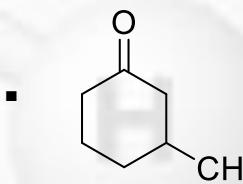
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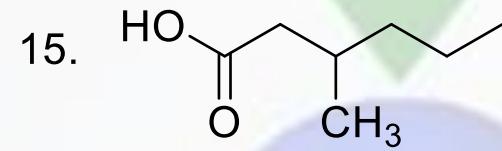
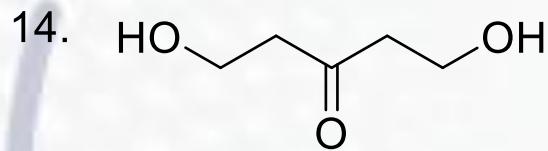
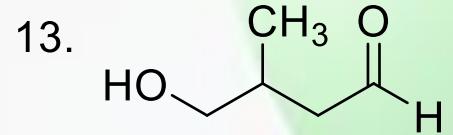
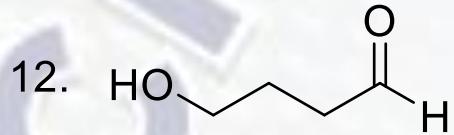
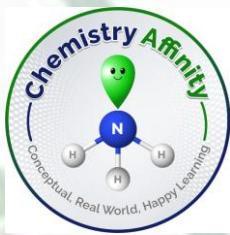
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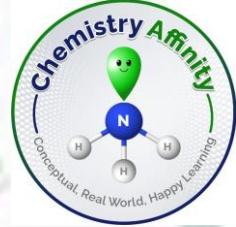


11.



5. Write down IUPAC Nomenclature

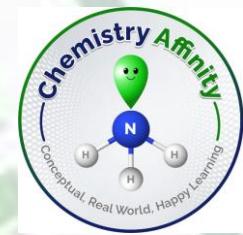




6. Draw structures and write down IUPAC nomenclature

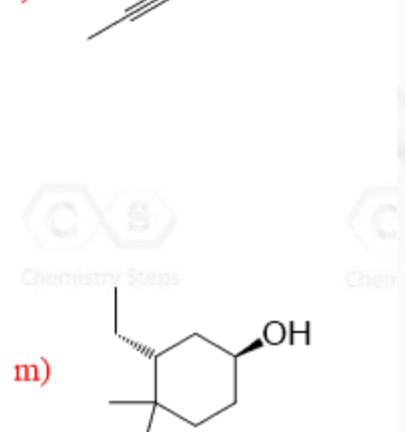
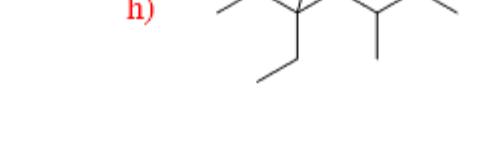
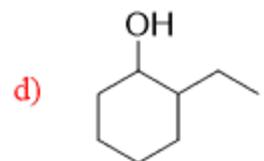
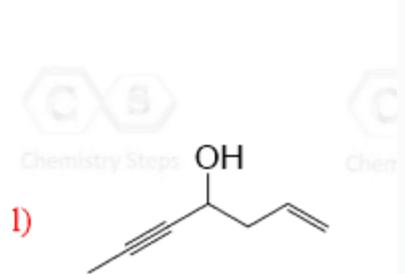
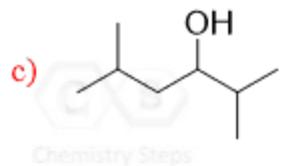
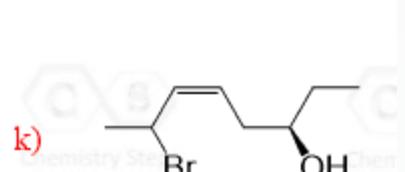
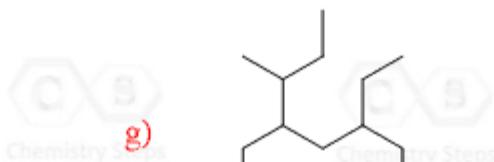
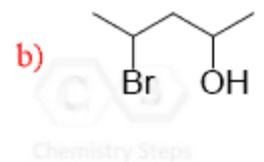
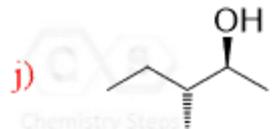
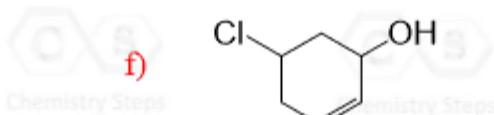
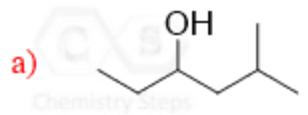


7. From IUPAC nomenclature draw molecules

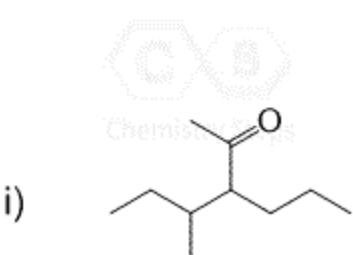
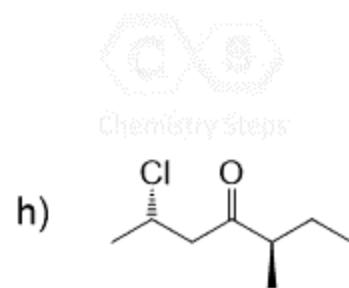
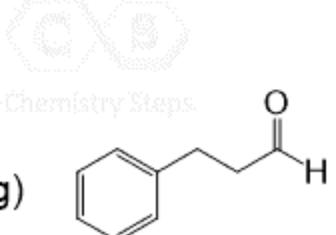
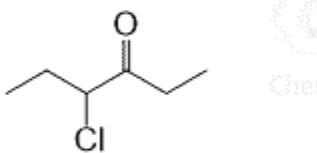
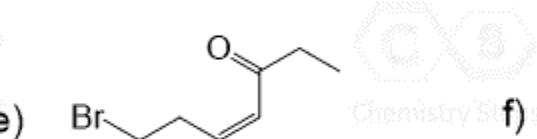
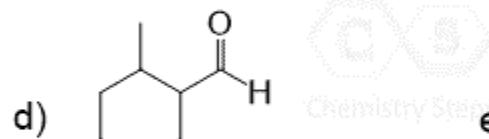
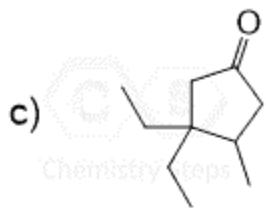
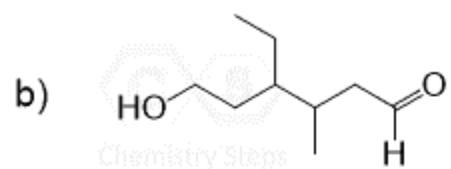
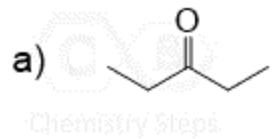


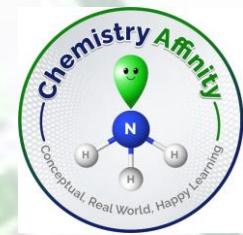
- A. 2-methylpropane-2-ol**
- B. 4-bromo-2,4-dimethylpentane-2-ol**
- C. 3. 2-methylpentan-2-ol**
- D. prop-2-yne-1-ol**
- E. 3-isopropoxypentane**
- F. 1-(4-chlorophenoxy)-3-methylbenzene**
- G. 2-(tert-butoxy)-2-methylpropane**

8. Write down IUPAC of various alcohols



9. Write down IUPAC of various carbonyl compounds





All the best