

# ST ANDREWS SCOTS SR SEC SCHOOL

9th Avenue, I.P.Extension, Patparganj, Delhi - 92

## WORKSHEET FOR SUMMER VACATION

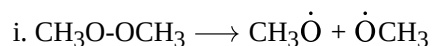
### Class 11 - Chemistry

#### Section A

1. What are carbanions? Give an example. [2]
2. Which of the two:  $\text{O}_2\text{NCH}_2\text{CH}_2\text{O}^-$  or  $\text{CH}_3\text{CH}_2\text{O}^-$  is expected to be more stable and why? [2]
3. What are electrophiles? Explain electrophile substitution reaction with the help of example. [2]
4. What is the basic principle of chromatography? [2]
5. Arrange the following in increasing order of C - C bond length: [2]  
 $\text{C}_2\text{H}_6, \text{C}_2\text{H}_4, \text{C}_2\text{H}_2$
6. Identify the most stable species in the following set of ions giving reasons. [2]
  - i.  $\overset{\ominus}{\text{C}}\text{H}_3, \overset{\ominus}{\text{C}}\text{H}_2\text{Cl}, \overset{\ominus}{\text{C}}\text{HCl}, \overset{\ominus}{\text{C}}\text{Cl}_3$
  - ii.  $\overset{+}{\text{C}}\text{H}_3, \overset{+}{\text{C}}\text{H}_2\text{Br}, \overset{+}{\text{C}}\text{HBr}_2, \overset{+}{\text{C}}\text{Br}_3$
7. Explain why  $(\text{CH}_3)_3\overset{+}{\text{C}}$  is more stable than  $\text{CH}_3\overset{+}{\text{C}}\text{H}_2$  and  $\overset{+}{\text{C}}\text{H}_3$  is the least stable cation. [2]
8. Write resonance structures of  $\text{CH}_3\text{COO}^-$  and show the movement of electrons by curved arrows. [2]
9. What are reactive intermediates? How are they generated by bond fission? [2]
10. Why is an organic compound fused with sodium in Lassaigne's test? [2]

#### Section B

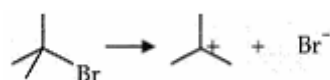
11. Derive the structure of 3 - Nitrocyclohexene. [3]
12. Draw the resonance structures for the following compounds. Show the electron shift using curved arrow notation. [3]
  - i.  $\text{C}_6\text{H}_5\text{OH}$
  - ii.  $\text{C}_6\text{H}_5\text{NO}_2$
  - iii.  $\text{CH}_3\text{CH}=\text{CHCHO}$
13. What is the basic principle involved in the estimation of nitrogen by Dumas method. [3]
14. For the following bond cleavages, use curved arrows to show the electron flow and classify each as homolysis or heterolysis. Identify reactive intermediate produced as free radical, carbocation and carbanion? [3]



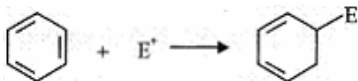
ii.



iii.

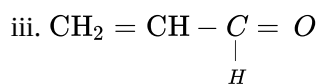
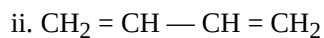
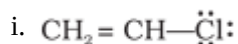


iv.

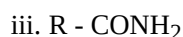
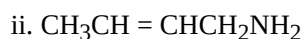
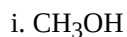


15. Give three points of differences between inductive effect and resonance effect. [3]

16. Draw the resonance structures of the following compounds: [3]



17. Which of the following compounds will not exist as resonance hybrid? Give reason for your answer [3]



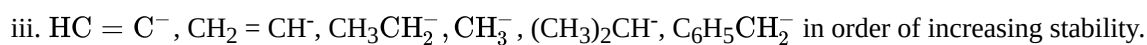
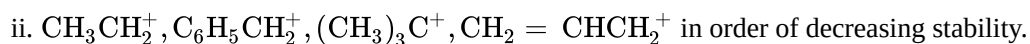
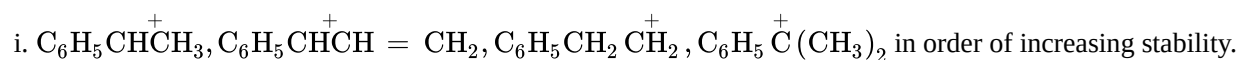
18. Suggest a method to purify [3]

i. a liquid which decomposes at its boiling point.

ii. kerosene oil containing water.

iii. camphor containing traces of common salt.

19. Arrange the following: [3]



20. Write the IUPAC name of the compound from its given structure. [3]

