

## Chapter End Test

(2019-20)

Date : __/__/2019	<b>Chemistry</b>	<b>Class</b>
Duration: __ Min. Max. Marks: __	<b>Topic : Haloalkanes</b>	<b>XII</b>

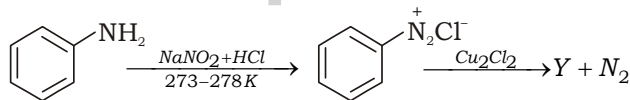
1. Which is the correct IUPAC name for  
 $\text{CH}_3-\underset{\substack{| \\ \text{C}_2\text{H}_5}}{\text{CH}}-\text{CH}_2-\text{Br}$ ?
- (a) 1-Bromo-2-ethylpropane                      (b) 1-bromo-2-ethyl-2-methylethane  
(c) 1-Bromo-2-methylbutane                      (d) 2-Methyl-1-bromobutane
2. The position of -Br in the compound in  $\text{CH}_3\text{CH}=\text{CHC}(\text{Br})(\text{CH}_3)_2$  can be classified as .....
- (a) Allyl    (b) Aryl  
(c) Vinyl    (d) Secondary
3. Gem-dibromide is.
- (a)  $\text{CH}_3\text{CH}(\text{Br})\text{CH}(\text{Br})\text{CH}_3$                       (b)  $\text{CH}_3\text{CBr}_2\text{CH}_3$   
(c)  $\text{CH}_2(\text{Br})\text{CH}_2\text{CH}_2\text{Br}$                       (d)  $\text{CH}_2\text{BrCH}_2\text{Br}$

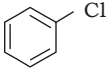

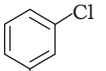

4. The order of reactivity of following alcohols with halogen acids is ...



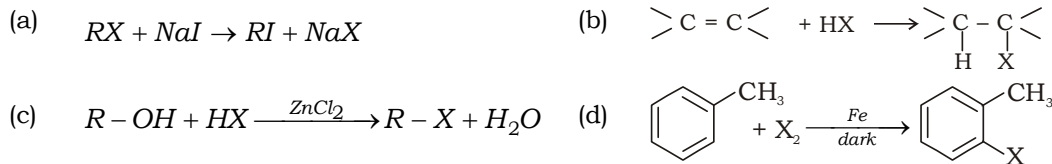
- (a) (I) > (II) > (III)                                      (b) (III) > (II) > (I)  
(c) (II) > (I) > (III)                                      (d) (I) > (III) > (II)

5. Identify the compound Y in the following reaction.

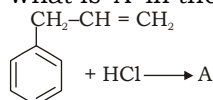


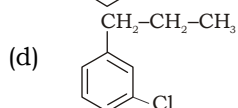
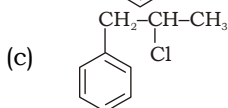
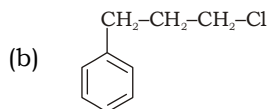
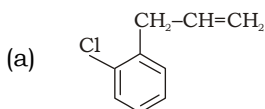
- (a)                       (b)   
(c)                       (d) 

6. Which of the following is halogen exchange reaction?



7. What is 'A' in the following reaction?



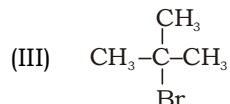
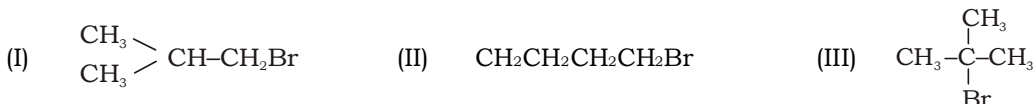


8. Which is the correct increasing order of boiling points of the following compounds?

1-Iodobutane, 1-Bromobutane, 1-Chlorobutane, Butane

- (a) Butane < 1-Chlorobutane < 1-Bromobutane < 1-Iodobutane  
 (b) 1-Iodobutane < 1-Bromobutane < 1-Chlorobutane < Butane  
 (c) Butane < 1-Iodobutane < 1-Bromobutane < 1-Chlorobutane  
 (d) Butane < 1-Chlorobutane < 1-Iodobutane < 1-Bromobutane

9. Arrange the following compounds in increasing order of their boiling points.



- (a) II < I < III  
 (b) I < II < III  
 (c) III < I < II  
 (d) III < II < I

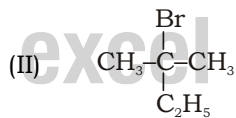
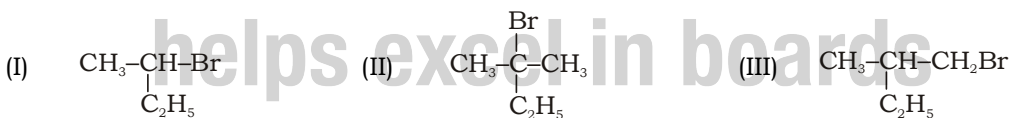
10. Chlorobenzene is formed by reaction of chlorine with benzene in the presence of  $\text{AlCl}_3$ . Which of the following species attacks the benzene ring in this reaction?

- (a)  $\text{Cl}^-$   
 (b)  $\text{Cl}^+$   
 (c)  $\text{AlCl}_3$   
 (d)  $[\text{AlCl}_4]^-$

11. Reaction of  $\text{C}_6\text{H}_5\text{CH}_2\text{Br}$  with aqueous sodium hydroxide follows...

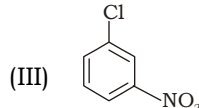
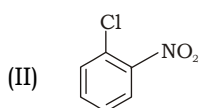
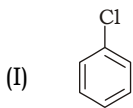
- (a)  $\text{S}_{\text{N}}1$  mechanism  
 (b)  $\text{S}_{\text{N}}2$  mechanism  
 (c) Any of the above two depending upon the temperature of reaction  
 (d) Saytzeff rule

12. Which of the following compounds will give racemic mixture of nucleophilic substitution by  $\text{OH}^-$  ion?



- (a) I  
 (b) I, II, III  
 (c) II, III  
 (d) I, III

13. Arrange the compounds in increasing order of rate of reaction towards nucleophilic substitution.



- (a) I < II < III  
 (b) III < II < I  
 (c) I < III < II  
 (d) III < I < II

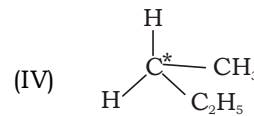
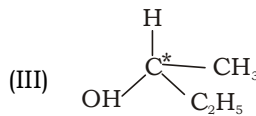
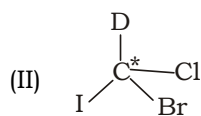
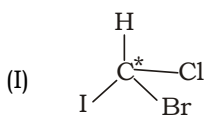
14. A primary alkyl halide...

- (a) is ethyl chloride.  
 (b) is neopentyl chloride  
 (c) would prefer to undergo  $\text{S}_{\text{N}}$  reaction.  
 (d) All of the above

15. For nucleophilic substitution, chlorobenzene is ...

- (a) Less reactive than benzyl chloride  
 (b) More reactive than ethyl bromide  
 (c) Nearly as reactive as methyl chloride

- (d) More reactive than isopropyl chloride
16. Which of the following compounds does not undergo nucleophilic substitution reactions?  
 (a) Vinyl chloride (b) Ethyl bromide  
 (c) Benzyl chloride (d) Isopropyl chloride
17. In which of the following molecules carbon atom marked with asterisk (\*) is asymmetric?

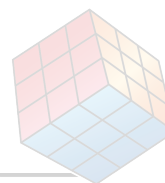


- (a) I, II, III, IV (b) I, II, III  
 (c) II, III, IV (d) I, III, IV
18. Molecules whose mirror image is non-superimposable over them are known as chiral. Which of the following molecules is chiral in nature?  
 (a) 2-Bromobutane (b) 1-Bromobutane  
 (c) 2-Bromopropane (d) 2-Bromopropan-2-ol
19. Which of the following is/are primary alkyl halide(s)?  
 (1)  $\text{CH}_3\text{CH}(\text{C}_2\text{H}_5)\text{Br}$  (2)  $\text{CH}_3\text{C}(\text{C}_2\text{H}_5)\text{BrCH}_3$   
 (3)  $\text{CH}_3\text{CH}(\text{C}_2\text{H}_5)\text{CH}_2\text{Br}$   
 (a) 3 (b) 1,2,3  
 (c) 2,3 (d) 1,3

20. IUPAC name of DDT is  
 (a) 1, 1, 1 -trichloro - 2, 2-bis(4-chlorophenyl) ethane  
 (b) 1,1 - dichloro-2, 2-diphenyl trimethylethane  
 (c) 1, 1-dichloro-2, 2-diphenyl trichloroethane  
 (d) None of these

21. Give reason:

Benzylic halides show high reactivity towards  $\text{S}_\text{N}1$  reaction.



[1]

22. How are the following conversions carried out?

- (i) Benzyl chloride to benzyl alcohol  
 (ii) Tert-Butyl bromide to isobutyl bromide

[2]

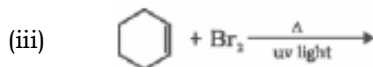
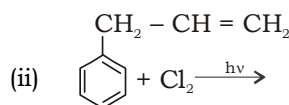
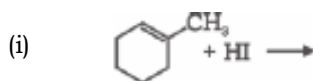
23. Primary alkyl halide  $\text{C}_4\text{H}_9\text{Br}$  (a) reacted with alcoholic KOH to give compound (b). Compound (b) is reacted with HBr to give (c) which is an isomer of (a). When (a) is reacted with sodium metal it gives compound (d),  $\text{C}_8\text{H}_{18}$  which is different from the compound formed when n-butyl bromide is reacted with sodium. Give the structural formula of (a) and write the equations for all the reactions. [3]

OR

Define the following with suitable examples: [3]

- (i) Chiral and chirality (ii) Enantiomers  
 (iii) Racemic mixture

24. (a) Complete the following reaction/equations: [3]



- (b) Although chlorine is an electron withdrawing group, yet it is ortho-para-directing in electrophilic aromatic substitution reactions. Why? [2]



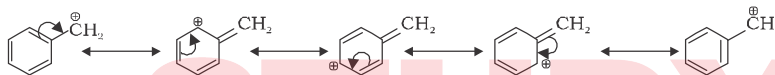
## Hints/Solution to Chapter End Test

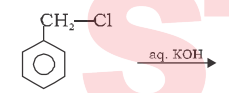
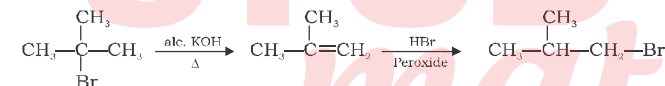
(2019-20)

Date : __/__/2019	<b>Chemistry</b>	<b>Class</b>
Duration: __ Min. Max. Marks: __	<b>Topic : Haloalkanes</b>	<b>XII</b>

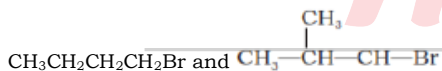
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|---------|---------|---------|---------|---------|
| 1. (c)  | 2. (a)  | 3. (b)  | 4. (b)  | 5. (a)  |
| 6. (a)  | 7. (c)  | 8. (a)  | 9. (c)  | 10. (b) |
| 11. (a) | 12. (a) | 13. (c) | 14. (d) | 15. (a) |
| 16. (a) | 17. (b) | 18. (a) | 19. (a) | 25. (a) |

21. Benzyl carbocation is stabilised through resonance. Hence, it shows high reactivity towards  $S_N1$  reaction.

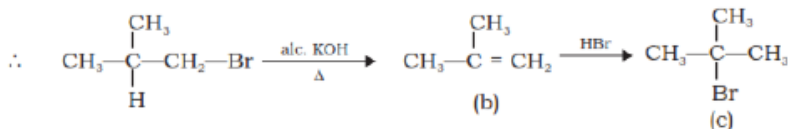
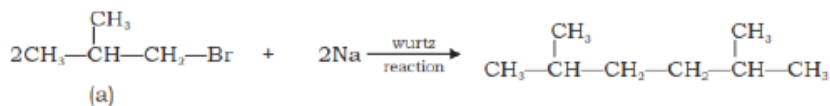
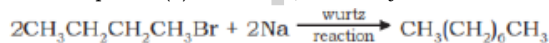


22. (i) 
- (ii) 

23. Two primary alkyl halides having the molecular formula,  $C_4H_9Br$  are



Compound (a) when reacted with Na metal gives a compound (d) with molecular formula  $C_8H_{18}$  which is different from the compound obtained when n-butyl bromide is reacted with Na metal. Therefore, (a) must be isobutyl bromide and compound (d) must be 2,5-dimethyl hexane.



OR

Refer Note

24. (a)
- (b) Chlorine withdraws electrons through inductive effect and releases electrons through resonance. Through inductive effect, chlorine destabilise the intermediate carbocation formed during the electrophilic substitution. inductive effect destabilises the intermediate carbocation.
- (c)  $i = 3$

