



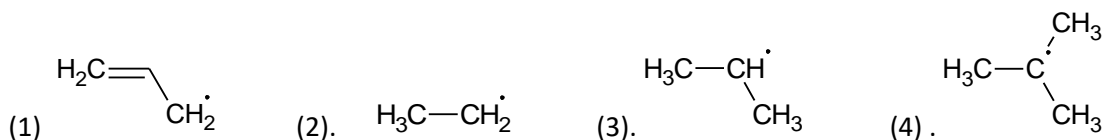
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Q1. R-X can be reduced to R-H by (Zn-Cu) couple/ EtOH as a result of :

- (1) Nascent hydrogen
- (2) Molecular hydrogen
- (3) Electron transfer from the metal to the substrate followed by the addition of protons from the solvent
- (4) All are correct statements

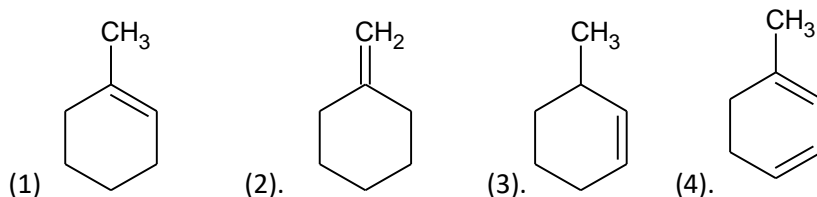
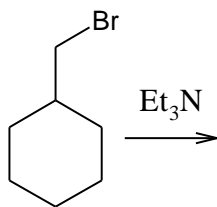
Q2. Which radical among the following is most easily produced ?



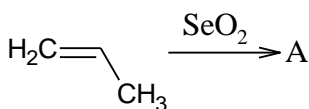
Q3. Select the correct statement(s) :

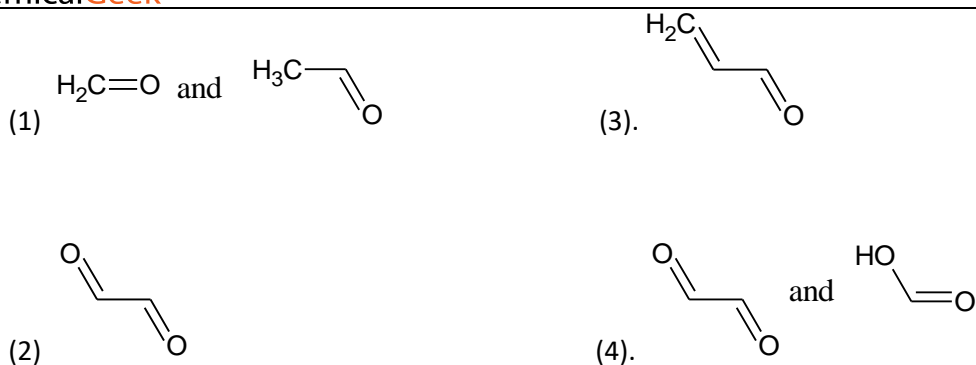
- (1) In the chlorination of n-butane ,2-chlorobutane is formed faster than 1-chlorobutane
- (2) Bromine is less reactive towards alkanes in general than chlorine but bromine is more selective in the site of attack when it does react.
- (3) Reactivity of halogens towards alkanes is in order  $\text{F}_2 > \text{Cl}_2 > \text{Br}_2 > \text{I}_2$
- (4) All are correct statements.

Q4. What is the major product of the following reaction ?



Q5. The product A in the following reaction is /are :



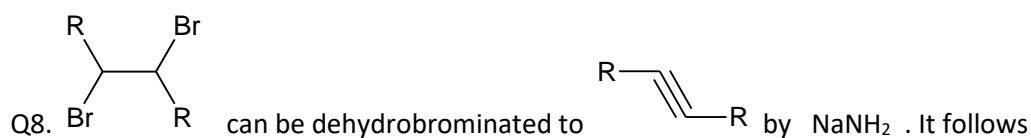


Q6. Select incorrect statement :

- (1) Hydroxylation (glycol formation) can be effected by cold alkaline  $\text{KMnO}_4$  /  $\text{HCOOOH}$  /  $\text{OsO}_4$  in ether.
- (2) Addition of 2-OH by  $\text{KMnO}_4$  is anti
- (3) Addition of 2-OH by  $\text{HCOOOH}$  is anti
- (4) Addition of 2-OH by  $\text{KMnO}_4$  is syn

Q7. Cis-trans isomerism is not possible in alkynes because of :

- (1)  $180^\circ$  bond angle at the carbon-carbon triple bond
- (2) Greater electronegativity of sp-hybridized carbon
- (3) Shorter bond length of carbon-carbon triple bond
- (4) Lesser stability of sp-hybridised state.

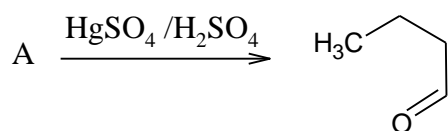


- (1) E1 mechanism
- (2) E2 mechanism
- (3)  $\text{S}_\text{N}1$  mechanism
- (4) E1 CB mechanism

Q9. Alkynes are reduced to trans-alkene by  $\text{Na}/\text{NH}_3$ . Reduction is due to :

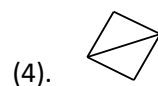
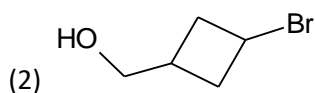
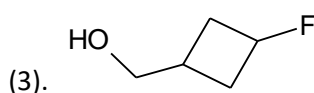
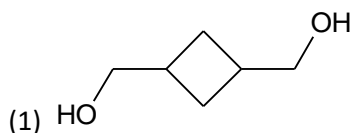
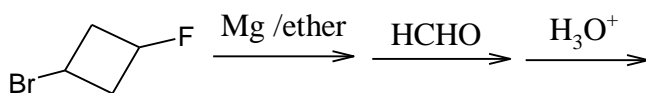
- (1) Nascent hydrogen
- (2) Molecular hydrogen
- (3) Atomic hydrogen
- (4) Solvated electrons

Q10. In the following reaction the compound A is ?



- (1) 1-butyne
- (2) 2-butyne
- (3) Both (1) and (2)
- (4) None of these

Q11. What is the end product in the following sequence of reactions ?



Q12. Boiling points of alcohols are generally high . This is due to

- (1) Hydrogen bonding intermolecular attractions
- (2) Dipole –dipole attractions
- (3) Both of the above
- (4) None of the above

Q13. Carbocation is not the intermediate in

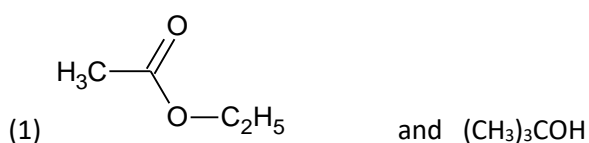
- (1) Hydroboration –oxidation of an alkene
- (2) Oxymercuration-demercuration of an alkene
- (3) Reaction of HCl with EtOH
- (4) In all cases

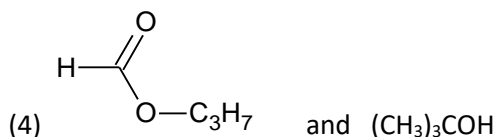
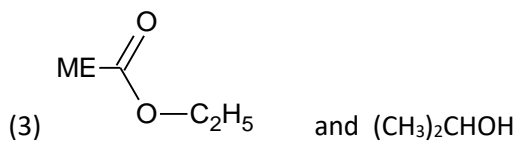
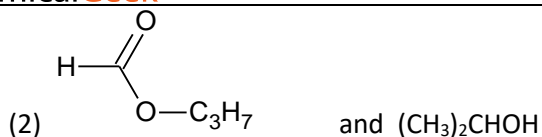
Q14. Jones reagent is :

- |                                       |  |
|---------------------------------------|--|
| (1) $\text{MnO}_2$                    | (3). $\text{N}_2\text{O}_4$ in $\text{CHCl}_3$ |
| (2) $\text{CrO}_3$ in aqueous acetone | (4). Pyridium Chloro Chromate                  |

Q15. Ester A ( $\text{C}_4\text{H}_8\text{O}_2$ ) +  $\text{CH}_3\text{MgBr}$  (2 parts)  $\xrightarrow{\text{H}_3\text{O}^+}$   $\text{C}_4\text{H}_{10}\text{O}$  (alcohol B)

Alcohol B reacts fastest with Lucas reagent . Hence A and B are :





Q16. Alkene can be converted to oxirane by oxidation using :

- (1) m-Chloro per benzoic acid
- (2) Trifluoroperoxyacetic acid
- (3) Oxygen /Ag (catalyst)
- (4) All of the above

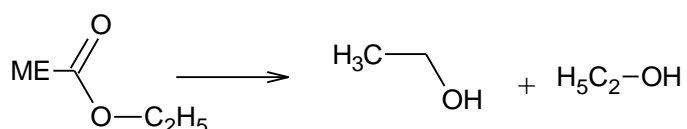
Q17. Oxiranes are cleaved under acidic and basic conditions because of :

- (1) Strain produced due to decrease in bond-angle to  $61.5^\circ$  from normal value of  $109.5^\circ$
- (2) Strong  $\text{H}^+$  and  $\text{OH}^-$
- (3) Formation of oxonium ion
- (4) Formation of carbocation

Q18. Select the incorrect statements :

- (1) After saponification of glycerides, glycerol remains in a spent-lye and is recovered by steam distillation
- (2) Olein is a fat
- (3) Glycerol has two ,primary and secondary alcoholic groups
- (4) Alkaline potassium permanganate converts allyl alcohol into glycerol.

Q19. In the following reduction, reducing agent used is :

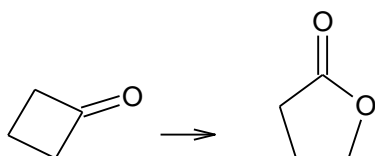


- (1) DIBAL-H
- (2)  $\text{LiAlH}_4$
- (3)  $\text{NaBH}_4$
- (4)  $\text{H}_2 / \text{Pd}-\text{BaSO}_4$

Q20. An acid chloride on reaction with  $\text{H}_2/\text{Pd}-\text{BaSO}_4$  changes to  $(\text{CH}_3)_2\text{CHCHO}$ . This acid chloride on reaction with  $\text{MeMgBr}$  and  $\text{H}_3\text{O}^+$  gives :

- (1)  $(\text{CH}_3)_3\text{COH}$
- (2)  $(\text{CH}_3)_2\text{CHOH}$
- (3)  $(\text{CH}_3)_2\text{CHCOCH}_3$
- (4)  $(\text{CH}_3)_2\text{CHCHO}$

Q21. For the following transformation :

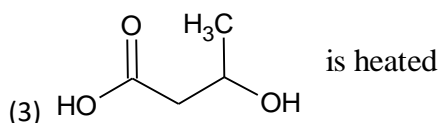
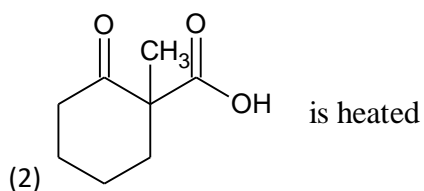
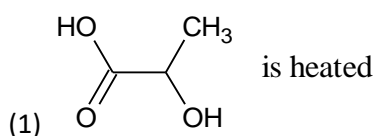


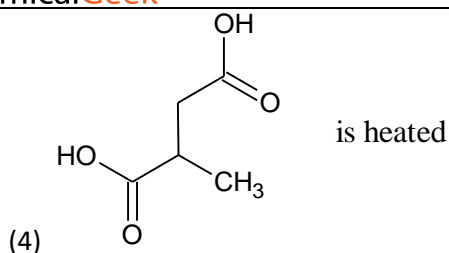
- (1)  $\text{SeO}_2$
- (2) Perbenzoic acid
- (3)  $\text{ClO}^-$
- (4) Se

Q22. Select the incorrect statements :

- (1) Carbonyl compounds are attacked by nucleophiles
- (2) An aldehyde has a greater partial positive charge on its carbonyl carbon than ketone.
- (3) Protonation of a carbonyl compound decreases electrophilic nature and thus nucleophilic attack is retarded
- (4) Hydration of  $\text{CCl}_3\text{CHO}$  is more than that of acetaldehyde.

Q23. Which one among the following loses chirality upon heating ?





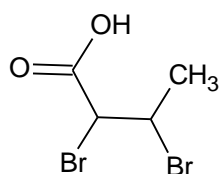
Q24. Which one of the following represents pair of stereoisomerisms ?

- (1) Chain isomerism and rotational isomerism
- (2) Structural isomerism and geometric isomerism
- (3) Linkage isomerism and geometric isomerism
- (4) Optical isomerism and geometric isomerism

Q25. Meso tartaric acid is optically inactive due to :

- (1) Two asymmetric carbon atom
- (2) External compensation
- (3) Molecular symmetry
- (4) Molecular asymmetry

Q26. The number of enantiomers of the compound



- (1) 2
- (2) 3
- (3) 4
- (4) 6

Q27. Hoffmann's elimination of product (A) is :

