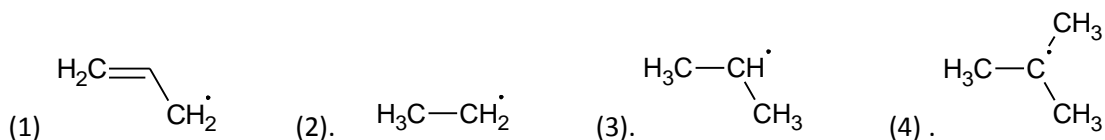


Q1. R-X can be reduced to R-H by (Zn-Cu) couple/ EtOH as a result of :

- (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

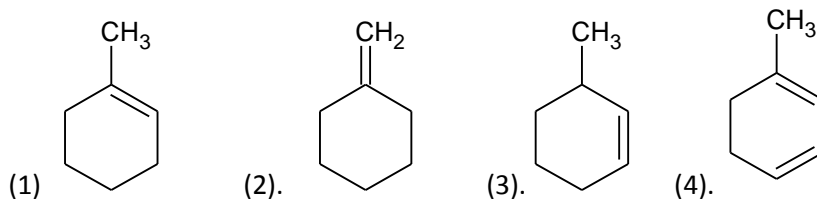
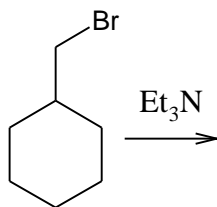
Q2. Which is the most stable radical (i.e which is most easily formed) ?



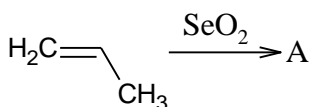
Q3. Select the correct statement(s) :

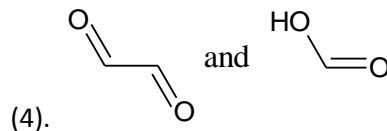
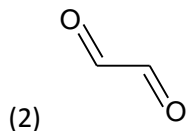
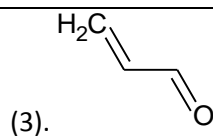
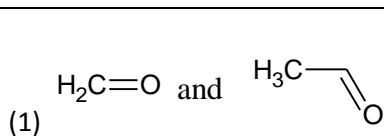
- (1) In the chlorination of n-butane ,2-chlorobutane is formed faster than 1-chlorobutane
- (2) Bromine is less reactive towards alkanes in general than chlorine but bromine is more selective in the site of attack when it does react.
- (3) Reactivity of halogens towards alkanes is in order $F_2 > Cl_2 > Br_2 > I_2$
- (4) All are correct statements.

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



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



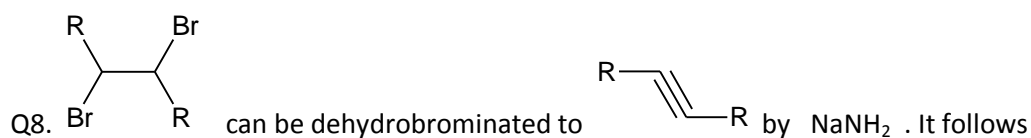


Q6. Select incorrect statement :

- (1) Hydroxylation (glycol formation) can be effected by cold alkaline KMnO_4 / HCOOOH / OsO_4 in ether.
- (2) Addition of 2-OH by KMnO_4 is anti
- (3) Addition of 2-OH by HCOOOH is anti
- (4) Addition of 2-OH by KMnO_4 is syn

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

- (1) 180° 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.

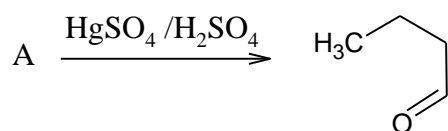


- (1) E1 mechanism
- (2) E2 mechanism
- (3) $\text{S}_{\text{N}}1$ mechanism
- (4) E1 CB mechanism

Q9. Alkynes are reduced to trans-alkene by Na/NH_3 . Reduction is due to :

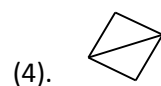
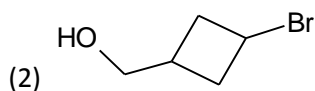
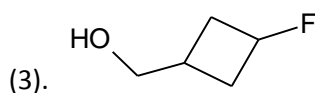
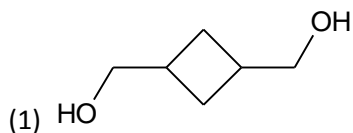
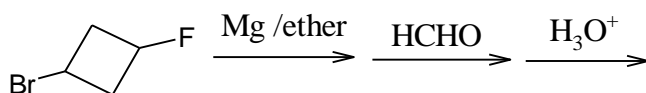
- (1) Nascent hydrogen
- (2) Molecular hydrogen
- (3) Atomic hydrogen
- (4) Solvated electrons

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 of the following reaction ?



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

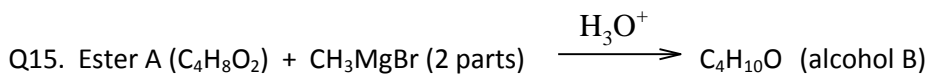
- (1) Hydrogen bonding intermolecular attractions
- (2) Dipole –dipole attractions
- (3) Both of the above
- (4) None of the above

Q13. Carbocation is not the intermediate in :

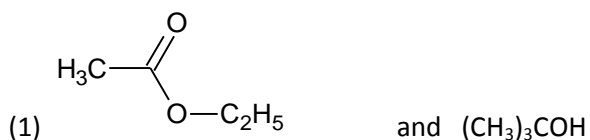
- (1) Hydroboration –oxidation of an alkene
- (2) Oxymercuration-demercuration of an alkene
- (3) Reaction of HCl with EtOH
- (4) In all cases

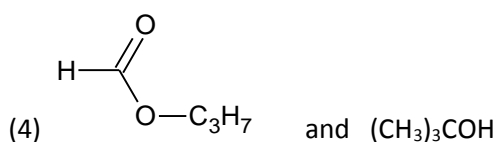
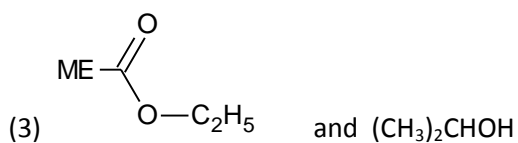
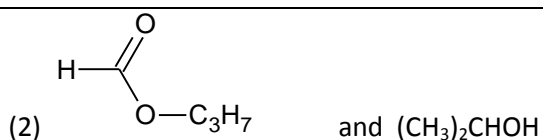
Q14. Jones reagent is :

- (1) MnO_2
- (2) CrO_3 in aqueous acetone
- (3). N_2O_4 in CHCl_3
- (4). PCC



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





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

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

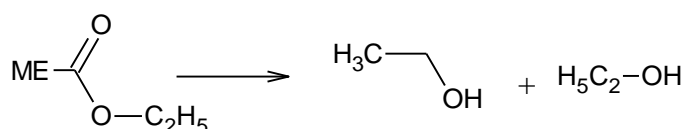
Q17. Oxiranes are cleaved under acidic and basic conditions because of :

- (1) Strain produced due to decrease in bond-angle to 61.5° from normal value of 109.5°
- (2) Strong H^+ and 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 :

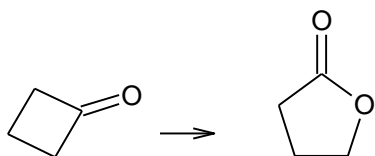


- (1) DIBAL-H
- (2) LiAlH_4
- (3) NaBH_4
- (4) $\text{H}_2 / \text{Pd} - \text{BaSO}_4$

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 MeMgBr and H_3O^+ 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 :

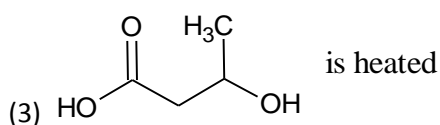
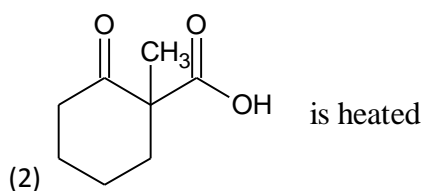
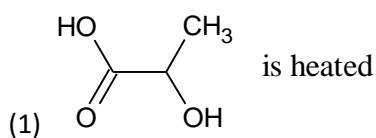


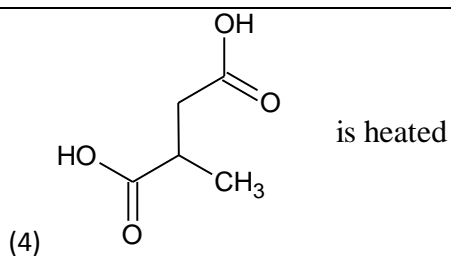
- (1) SeO_2
- (2) Perbenzoic acid
- (3) ClO^-
- (4) Se

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 CCl_3CHO is more than that of acetaldehyde.

Q23. Chirality is lost when :





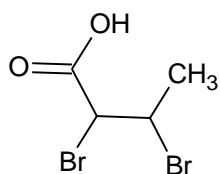
Q24. Which one of the following represents pair of stereoisomerisms ?

- (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 :

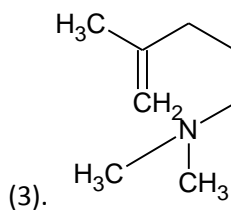
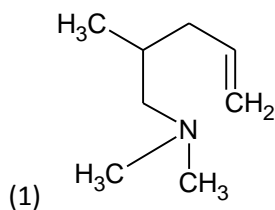
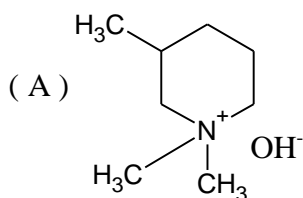
- (1) Two asymmetric carbon atom
- (2) External compensation
- (3) Molecular symmetry
- (4) Molecular asymmetry

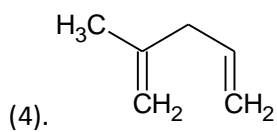
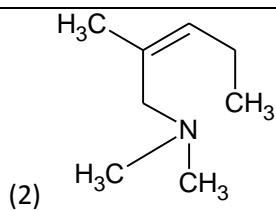
Q26. The number of enantiomers of the compound ?



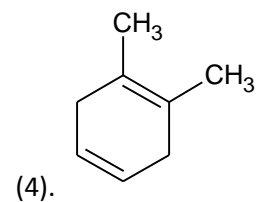
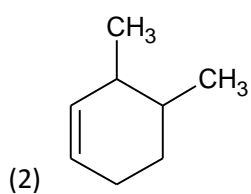
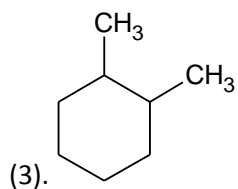
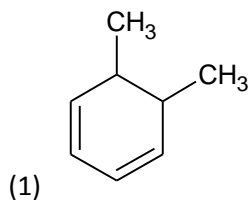
- (1) 2
- (2) 3
- (3) 4
- (4) 6

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





Q28. Birch reduction (dissolving metal reduction) of O-xylene gives :



Q29. During sulphonation of Benzene ,a small amount of a by –product is also formed which is :

- (1) m-benzene disulphonic acid
- (2) 1,3,5 –benzenetrisulphonic acid
- (3) Dihydrobenzenesulphonic acid
- (4) Diphenyl sulphur dioxide

Q30. Number of chiral carbons in glucose and fructose are :

- (1) 4 in each
- (2) 3 in each
- (3) 4 in glucose and 3 in fructose
- (4) 3 in glucose and 4 in fructose

