**ALVA’S P.U COLLEGE MOODBIDRI**

Department of Chemistry

**CRASH COACHING CLASSES – 2019 – 20-C10**

1. IUPAC name of below compound



1) 1-(2-hydroxypropyl-3-methylamino)cyclohexan-2-one

2) 2-(3-hydroxypropyl-2-methylamino)cyclohexan-1-one

3)1-(2-hydroxypropyl-3-methylamino)cyclohexan-1-one

4)2-(2-hydroxypropyl-3-methyl amino)cyclohexan-1-one

**Ans:4**

1. Kjeldahl’s method cannot be used for estimation of nitrogen in

1)C6H5NO2 2)Pyridine 3)Glycine 4)Both 1) and 2)

**Ans:4**

1. 0.5 g of an organic substance containing phosphorous was heated with Conc. HNO3 in the Carius tube. The phosphoric acid thus formed was precipitated with magnesia mixture as MgNH4PO4 which on ignition gave a residue of 1.0 g of magnesium pyrophosphate(Mg2P2O7).The percentage of phosphorous in the organic compound is

1)55.85 % 2)29.72 % 3) 19.18 % 4) 20.5 %

**Ans:1**

1. A is a lighter phenol and B is an organic carboxylic acid. Seperation of a mixture of A and B can be carried out easily by using a solution of

1)NaOH 2)Na2SO4 3)CaCl2 4)NaHCO3

**Ans:4**

**RCOOH  RCOONa +H2O**

**+CO2**

**By evolving CO2 carboxylic acids dissolve in NaHCO3 but phenols do not.**

1. Low reactivity of vinyl chloride and chlorobenzene is due to

1)Positive mesomeric effect 2) Negative mesomeric effect

3)Greater electronegativity of chlorine 4) Lower electronegativity of chlorine

**Ans:1**

1. Addition of HI to double bond of propene yields isopropyl iodide and not n-propyl iodide as the major product because addition proceeds through

1)A more stable carbonium ion 2)A more stable carbanion

3)A more stable free radical 4)Homolysis

**Ans:1**

**All are examples of electrophilic addition reactions and involve the formation of addition product according Markovnikov’s rule.**

1. In the following structure



1)x,y and z represents Z-configuration

2) x,y and z represents E-configuration

3) xand z represents E-configuration while y represents Z-configuration

4) xand z represents Z-configuration while y represents E-configuration

**Ans:4**

**x and z: cis or z configuration,y: trans or E-configuration**

1. Types of isomerism shown by the product of the reaction between benzaldehyde and hydroxyl amine

1)syn and anti geometrical 2)Cis and trans geometrical

3)E and Z geometrical 4)None of these

**Ans:1**



1. Select the incorrect statement

1)Branching at the electron deficient carbon strongly stabilizes carbocations

2)Greater the stability of carbocation,easier the formation

3)Greater the stability of carbocation ,smaller the heat of formation

4)Greater the stability of carbocation greater the heat of formation

**Ans: 4**

1. Optical isomerism arises from the presence of

1)Centre of symmetry 2)A line of symmetry

3)An asymmetric carbon atom 4)Achiral carbon

**Ans:3**

**A compound could be optically active only when it contains at least one asymmetric carbon atoms or a chiral centre.**

1. 0.46g of an organic compound containing carbon, hydrogen and oxygen was heated strongly in a stream of N2 gas. The gaseous mixture thus obtained was passed first over heated coke at 1373K and then through a warm solution of iodine pentoxide when 1.27g of I2 was liberated. The percentage of oxygen present in the organic compound is

1)87.34 2)86.96 3)47.38 4)38.47

**Ans:2**

**Percentage of O**

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1. The correct sequence of reactions to be performed to convert benzene into m- bromoaniline is 1) Nitration, reduction, bromination 2) Bromination, nitration, reduction

3) Nitration, bromination, reduction 4) Reduction, nitration, bromination

**Ans: 3**



1. Identify the correct statement in the following

1)n–butane and isobutene are functional isomers

2) propan – 1 – ol and propan – 2- ol are position isomers

3) Dimethyl ether and ethanol are chain isomers

4) Ethanoic acid & methyl methanoate are position isomers.

**Ans: 2**

1. What product are formed when the following compound is treated with Br2 in the presence of FeBr3?





**Ans: 3**

**Because of o, p directive influence of CH3 – group.**

1. Which of the following is most reactive towards nucleophilic addition reaction?



**Ans: 4**

**Because of – NO2 group, it is electron deficient, so most reactive to Nu addition reaction.**

1. In which of the following compounds the C – Cl bond ionization shall give most stable carbonium ion?



**Ans: 3**

**Benzyl cation is more stable.**

1. In Duma’s method for estimation of nitrogen, 0.25 g of an organic compound gave 40ml of nitrogen collected at 300K temperature and 725 mm pressure. If the aqueous tension at 300K is 25 mm, the percentage of nitrogen in the compound is

1)17.36 2) 18.20 3) 16.76 4) 15.76

**Ans : 3**

**Given PN2 = Ptotal –PH2O**

**= 725 – 25 = 700 mm**

**According to Dumas method for estimation of nitrogen**

**weight of nitrogen =**

**=**

**% of Nitrogen=**

1. Consider the following compounds



Hyperconjugation occurs in

1)I only 2) II only 3) III only 4) I & III

**Ans: 3**

1. Given



Which of the given compounds can exhibit tautomerism?

1) I and II 2) I and III 3) II and III 4) I , II and III

**Ans: 1**

1. Which among the given molecules can exhibit tautomerism?



1) III only 2) Both I & III 3) Both I & II 4) Both II & III

**Ans: 1**

**In tautomerism hydrogen must be present in the molecule. Molecule in I & II will not show tautomerism because of bridge.**





1)5 – formylhex – 2- en – 3 –one 2) 5 – methyl – 4- oxohex – 2- en – 5 – al

3) 3- keto – 2 – methylhex – 5 – enal 4) 3- keto – 2- methylhex – 4- enal

**Ans: 4**

1. The correct statement regarding electrophile is

1) Electrophile is a negatively charged species and can form a bond by accepting a pair of electrons from another electrophile.

2) Electrophile are generally neutral species and can form a bond by accepting a pair of electrons from a nucleophile.

3) Electrophile can be either neutral or positively charged species and can form a bond by accepting a pair of electrons from a nucleophile.

4) Electrophile is a negatively charged species and can form a bond by accepting a pair of electrons from a nucleophile.

**Ans: 3**

1. Number of sigma & pi bonds in pent – 2- en – 4 – yne is

1)13bonds and no bonds 2) 10 bonds and 3 bonds

3) 8bonds and 5 bonds 4) 11bonds and 2 bonds

**Ans: 2**

1. Among the following the reaction that proceeds through an electrophilic substitution is





**Ans: 3**

1. Which of the following compounds will form significant amount of meta product during mono- nitration reaction?



**Ans: 2**

1. 3 – methyl – pent – 2- ene on reaction with HBr in presence of peroxide forms an addition product. The number of possible stereoisomers for the product is :

1) Zero 2) Two 3) Four 4) Six

**Ans: 3**

1. A mixture containing the following four compounds is extracted with 1M HCl. The compound that goes to aqueous layer is



1) I 2) II 3) III 4) IV

**Ans: 2 . It is an amine. Pure amine is water insoluble . On reaction with HCl , it forms salt . Which is water soluble.**

1. In the following structure , the double bonds are marked as , I, II, III & IV



Geometrical isomerism is not possible at site (s)

1) III 2)I 3) I & III 4) III & IV

**Ans: 2**

**For geometrical isomerism, different groups should be attached to each sp2 hybridised c- atom.**

1. Two compounds I and II are eluted by column chromatography (adsorption of I > II) which one of the following is a correct statement?

1) I moves faster & has higher Rf value than II

2) II moves faster and has higher Rf value than I

3) I moves slower & has higher Rf value than II

4) II moves slower & has higher Rf value than I

**Ans: 2**

1. Which one of the following is likely to give a precipitate with AgNO3 solution?

1) CHCl3 2) (CH3)3Cl 3) CCl4 4) CH2= CH –Cl

**Ans: 2**

1. Structure of 2 – methyl-2- cyclohexen-1-ol is



**Ans: 2**

**2- methyl-2-cyclohexene – 1 – ol**

**Methyl at C2 ene at C2 ol at C1**

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1. Assertion :



Is named as 3- formyl – 2- butanone

Reason : Formyl (−CHO) group is preferred to keto group.

1) Both assertion and reason are true and reason is correct explanation of assertion.

2) Both assertion and reason are true but reason is not the correct explanation of assertion.

3) Assertion is true but reason is false.

4) Assertion is false but reason is true.

**Ans: 4**

1. Select the incorrect statement.

1) Electron – withdrawing inductive effect of the carbonyl group in –COOH group weakens the O−H bond and favours ionization of a carboxylic acid compared with an alcohol.

2)Inductive effect of the chlorine destabilizes the acid and stabilizes the conjugate base

3)Aniline is a weaker base than ammonia

4) Phenol is a weaker acid than water

**Ans: 4**

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**Thus, C6H5OH is stronger acid than water.**

**Thus, 4) is incorrect statement.**

1. Maximum hyperconjugation is observed in



**Ans: 4**

1. Geometry of methyl free radical is a

1) pyramidal 2) planar 3) tetrahedral 4) linear

**Ans: 2**

**Number of hybrid orbitals = number of -bonds + number of lps**

**In **

**; -bonds = 3, lps= 0**

**Therefore Number of hybrid orbitals = 3 + 0 = 3**

**Hence, hybridisation is sp2 and geometry is planar.**

**(Methyl free radical is highly reactive due to the presence of one unpaired electron.)**

1. Assertion : A compound with delocalised electron is more stable than that compound would be if all its electrons were localised.

Reason : The extra stability, a compound gains as a result of having delocalised electrons, is called delocalisation energy

1) both assertion and reason are true and reason is correct explanation of assertion.

2) both assertion and reason are true and but reason is not the correct explanation of assertion.

3) assertion is true but reason is false.

4) both assertion and reason are false

**Ans: 2**

**Delocalisation of electrons provides more stability to the compounds. The extra stability which is acquired by a compound as a result of resonance (delocalisation of electrons) is called resonance energy or delocalisation energy. Hence, statement I and II both are correct but statement II is not the correct explanation of I.**

1. In Lassaigne’s test, the organic compound is fused with a piece of sodium metal in order to

1)Increase the ionization of the compound

2) Decrease the melting point of the compound

3) Increase the reactivity of the compound

4)Convert the covalent compound into a mixture of ionic compounds.

**Ans: 4**

1. In carius tube, the compound ClCH2COOH was heated with fuming HNO3 and AgNO3.After filtration and washing, a white ppt was formed. The precipitate is

1)AgCl 2)AgNO3 3) Ag2SO4 4) ClCH2COOAg

**Ans: 1**

1. Which is not the position isomer of I?



**Ans : 1**

**Structrure in (1) is very same that is I.**

**2), 3) and 4) are position isomers of I.**

1. Which forms meso form on reaction with alkaline KMnO4?



**Ans : 2**



1. Following compound A



1)is a meso compound 2) is a diastereomer 3) is a threo-enantiomer 4) is a trans-isomer

**Ans : 1**

1. How many asymmetric carbon atoms are present in

i) 1,2-dimethylcyclohexane,

(ii) 3-methylcyclopentene and

(iii) 3-methylcyclohexene?

1) two, one, one 2) one, one, one 3) two, none, two 4) two, none, one

**Ans : 1**



1. The following compound can exhibit



1) geometrical isomerism 2) geometrical and optical isomerism

3) optical isomerism 4) tautomerism

**Ans : 3**

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**same groups, hence, geometrical isomers are not possible**

1. Select the correct statements.



both give colour with neutral FeCl3 solution

2) 2-pentanone and 3-pentanone are position as well as metamers

3)Product formed when benzaldehyde reacts with hydroxylamine shows geometrical isomerism

4)All of the above are correct statements

**Ans : 4**

**1) true 2) true 3) true**

1. In which of the following reactions, the product obtained is chiral?

1) CH3COCH3

2) CH3COCl

3) CH3CH2CO2CH2CH3

4) CH3CH2COCH3

**Ans : 4**

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