Uka Tarsadia University (Diwaliba Polytechnic)
Diploma in Chemical Engineering
Objective Type Questions (Organic Chemistry)

UNIT 1

CONCEPTSOF ORGANIC CHEMISTRY

1. Organic compounds are broadly classified as
   a) Open chain compounds and acyclic compounds
   b) Open chain compounds and linear chain compounds
   c) Cyclic compounds and alicyclic compounds
   d) alicyclic compounds and acyclic compounds
2. Aliphatic compound is the other name for
   a) Acyclic compounds
   b) Alicyclic compounds
   c) Ring compounds
   d) Closed chain compounds
3. Which among the following is not an example of Acyclic compound
   a) Acetaldehyde
   b) Ethane
   c) Cyclopropane
   d) Isobutane
4. Which among the following is not an example of alicyclic compound
   a) Cyclohexane
   b) Cyclohexene
   c) Tetrahydrofuran
   d) Acetic acid
5. Which among the following is not an aromatic compound(in specific)
   a) Naphthalene
   b) Aniline
   c) Pyridine
   d) Tropolone
6. Find the odd one among the following:
   a) Alicyclic compounds
   b) Heterogeneous compounds
   c) Branched chain compounds
   d) Aromatic compounds
7. Identify the odd one among the following
   a) Indene
   b) Anthracene

c) o,m,p-xylene
d) Azulene

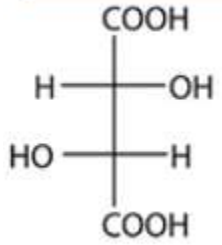
8. Which among the following is not a class of organic compound
   a) Carbonyl compound
   b) Nitro compound
   c) Amides
   d) Electro compounds
9. Organic compounds can be classified even based upon the function groups. Identify the one which is not a functional group
   a) Isocyanide
   b) Isocyano
   c) Carboxyl
   d) Carbonyl
10. Which among these is not associated with aliphatic compounds
    a) They contain (4n+2)pi electrons
    b) Contain straight chain compounds
    c) Contain branched chain compounds
    d) Has appropriate number of H-atoms and functional groups
11. Saturated hydrocarbons are otherwise referred as
    a) Alkanes
    b) Alkenes
    c) Alkynes
    d) Alkaloids
12. Identify the correct alkane name for the molecular formula C_30H_{62}
    a) Propdecane
    b) Eicosane
    c) Triacontane
    d) Dodecane
13. Identify the smallest alkane which can form a ring structure (cycloalkane)
    a) Cyclomethane
    b) Methane
    c) Cyclopropane
    d) Propane
14. In which among the following alkane, a carbon atom is displaced so as to form a compactly structure with the resemblance of a butterfly wing
    a) Cyclopropane
    b) Cyclobutane
    c) Cyclopentane
    d) Cyclohexane

15. The first step in IUPAC nomenclature is to identify the total number of carbon atoms present in the compound. State true or false
    a) True
    b) False
16. . The substituent in the chain is named by replacing the “ane” in the alkanes by
    a) ene
    b) ic
    c) one
    d) yl
17. The C=C bond in the chain of the compound considered is shown by
    a) Specifying the number of carbon atoms associated with the bond
    b) Specifying the number of carbon atoms at beginning of the C=C bond
    c) Specifying the number of carbon atoms at end of the C=C bond
    d) Specifying the number of carbon atoms in the entire chain
18. Dienes are the name given to compounds with
    a) Exactly a double bond
    b) Exactly a triple bond
    c) Exactly two double bond
    d) more than two double bond
19. Triple bond with two carbon atoms on either side is called
    a) Methnyl group
    b) Ethynyl group
    c) Propionyl group
    d) Propargyl group
20. The substituent groups that are commonly associated with benzene ring are
    a) Phenyl and benzyl
    b) Propyl and phenyl
    c) Methyl and benzyl
    d) Butyl and phenyl
21. Choose the incorrect option regarding Isomerism:
    a) They differ in both physical and chemical properties
    b) They have the different molecular formula
    c) There are two types of Isomerism : Structural and Stereo Isomerism
    d) Geometric and optical isomerism are two types of Stereo Isomerism
22. . Isomerism that arises out of the difference in spatial arrangement of atoms or groups about the doubly bonded carbon atoms are called? (In specific)
    a) Structural Isomerism
    b) Stereo Isomerism
    c) Geometrical Isomerism
    d) Optical Isomerism

23. Isomers with similar groups on the same side are called as ” trans” isomers. State true or false
    a) True
    b) False
24. Which among the following defines Meso forms of isomers
    a) Meso form is optically inactive due to external compensation
    b) The molecules of the meso isomers are chiral
    c) It can be separated into optically active enantiometric pairs
    d) It is a single compound
25. Which among the following does not exhibit geometric isomerism
    a) 1-hexene
    b) 2-hexene
    c) 3-hexene
    d) 4-hexene
26. Which among the following is formed when an alcohol is dehydrated?
    a) alkane
    b) alkyne
    c) alkene
    d) aldehyde
27. A fat on hydrolysis would yield?
    a) Glycerol and soap
    b) Ethanol and soap
    c) Ethanol and glycerol
    d) Only soap
28. Which among the following correctly defines Diastereomer?
    a) These have same magnitude but different signs of optical rotation
    b) Nonsuperimposable object mirror relationship
    c) These differ in all physical properties
    d) Separation is very difficult
29. The molecular formula C_5H_{12} contains how many isomeric alkanes?
    a) 1
    b) 2
    c) 3
    d) 4
30. Identify the chiral molecule among the following:
    a) Isopropyl alcohol
    b) 2-pentanol
    c) 1-bromo 3-butene
    d) Isobutyl alcohol

31. Hydrocarbons are organic compounds with element
    a) Hydrogen
    b) Oxygen
    c) Carbon
    d) Both hydrogen and carbon
32. Find the odd one out:
    a) Aromatic
    b) Alkanes
    c) Alkynes
    d) Alkenes
33. The simplest member of organic compounds is ?
    a) Methanol
    b) Methane
    c) Formaldehyde
    d) Formic acid
34. Ethane is obtained by electrolyzing
    a) Potassium formate
    b) Potassium succinate
    c) Potassium acetate
    d) Potassium fumarate
35. Methane is a product of aerobic respiration". State true or false
    a) False
    b) True
36. The hydrocarbon in which all the 4 valencies of carbon are fully occupied is called as
    a) Alkene
    b) Alkyne
    c) Alkane
    d) Cycloalkane
37. Liquid hydrocarbon is converted into gaseous hydrocarbon by:
    a) Oxidation
    b) Hydrolysis
    c) Cracking
    d) Distillation
38. Which type of compounds cannot exhibit geometrical isomerism?
    a) Singly Bonded
    b) Doubly Bonded
    c) Triply Bonded
    d) Cyclic Compounds

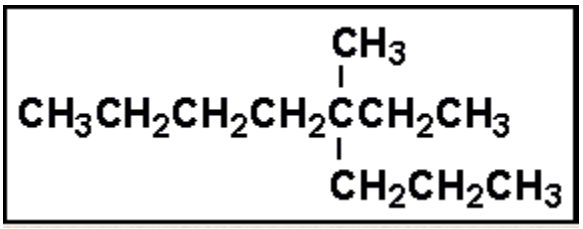
39. In which type of projection we can get staggered and eclipsed conformations?
    a) Newman Projection
    b) Sawhorse Projection
    c) Fischer Projection
    d) Wedge Projection
40. How many stereoisomers are there for the following structure?



    a) 1
    b) 2
    c) 3
    d) 4

41. A molecule with the formula is a(n):
(a) hexane
(b) propane
(c) decane
(d) butane
(e) ethane

42. Select the correct IUPAC name for:



(b) 5-methyl-5-propylheptane
(c) 4-ethyl-4-methyloctane
(d) 3-methyl-3-propyloctane
(e) 3-methyl-3-propylheptane

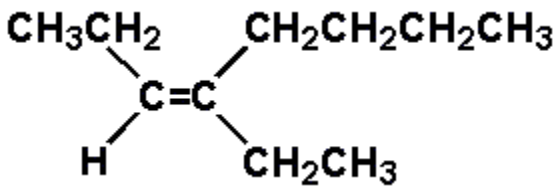
43. Select the correct IUPAC name for:

(a) 1,4-dimethylcyclopentane

(b) 1,3-dimethylcyclopentane
(c) 2,5-dimethylcyclopentane
(d) 2,3-dimethylcyclopentane
(e) 2,4-dimethylcyclopentane

44. The general formula for noncyclic alkenes is:
(a) C_nH_{2n+2}
(b) C_nH_{2n}
(c) C_nH_{2n-2}
(d) C_nH_{n+2}
(e) C_nH_n

45. Select the best name for

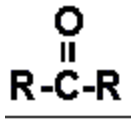


(a) 4-ethyl-cis-3-octene
(b) 4-ethyl-trans-3-octene
(c) 4-butyl-cis-3-hexene
(d) 5-ethyl-trans-5-octene
(e) 5-ethyl-cis-5-octene

46. Which of the following formulas represents an alkene?
(a) $CH_3CH_2CH_3$
(b) CH_3CH_3
(c) $CH_3CH_2CHCH_2$
(d) CH_3CH_2Cl
(e) CHCH

47. Give the IUPAC name of this compound: $CH_3OCH_2CH_3$.
(a) dimethyl ether
(b) methoxyethane
(c) methylethyloxide
(d) propyl ether
(e) none of the above

48. The functional group given is



(a) ketones
(b) acids
(c) aldehydes
(d) esters
(e) alcohols

49. How many number of stereoisomers possible for 2, 3-pentanediol?
    a) 3
    b) 4
    c) 5
    d) 6

50. . What is the total number of isomers, stereoisomers included, designated by the dichlorocyclopentane?
    a) 7
    b) 6
    c) 4
    d) 5

UNIT 2
PURIFICATIONOF ORGANIC COMPOUNDS

1. Which of the following is not a common method used for purification?
    a) Sublimation
    b) Crystallisation
    c) Electrolysis
    d) Chromatography
2. Crystallisation is based on the _____
    a) Difference in melting point
    b) Difference in boiling point
    c) Difference in pressure
    d) Difference in solubility
3. Which of the following is the example of crystallisation process?
    a) Purification of alum
    b) Purification of sea water
    c) Separation of gases from air
    d) None of the mentioned

4. At room temperature, the impure compound in crystallisation is _____
   a) Soluble
   b) Sparingly soluble
   c) Insoluble
   d) None of the mentioned
5. Which of the following is known as mother liquor?
   a) Solvent
   b) Solute
   c) Solution
   d) Filtrate
6. The solution of impure compound and solvent is concentrated to get _____
   a) Unsaturated solution
   b) Undersaturaed solution
   c) Saturated solution
   d) Oversaturated solution
7. Insoluble impurities from solution during crystallization are removed by _____
   a) Drying
   b) Filtration
   c) Heating
   d) Cooling
8. Crystal phases can be inter-converted by varying _____
   a) Temperature
   b) Pressure
   c) Size
   d) Viscosity
9. The nature of the crystallization process is governed by _____
   a) Thermodynamics
   b) Kinetic factors
   c) Thermodynamics and Kinetic factors
   d) None of the mentioned
10. What is the definition of melt crystallization?
    a) Crystallization of melts from eutectic-forming or solid solution forming mixtures
    b) Crystallization of melts from eutectic-forming or liquid solution forming mixtures
    c) Crystallization of melts from eutectic-forming or constant boiling mixtures
    d) Crystallization at very high temperatures

11. What happens in sublimation?
    a) Solid vaporizes in liquid phase
    b) A liquid vaporizes in gas phase
    c) A gas solidifies
    d) A solid vaporizes in gas phase without going in liquid phase
12. What happens in desublimation?
    a) Solid vaporizes in liquid phase
    b) A liquid vaporizes in gas phase
    c) A gas solidifies without changing to liquid
    d) A solid vaporizes in gas phase without going in liquid phase
13. What are sublimation and desublimation governed by?
    a) Liquid vapor pressure
    b) Solid vapor pressure
    c) Amount of solid present
    d) Partial pressure of gas
14. What happens at equilibrium during sublimation?
    a) Vapor pressure of liquid is equal to solid
    b) Vapor pressure of solid is equal to vapor pressure of gas
    c) Vapor pressure of solid is equal to partial pressure of solute in gas
    d) Vapor pressure of solid is equal to partial pressure of solute in liquid
15. When does the sublimation take place?
    a) The partial pressure of solute in gas phase is more than solid vapor pressure
    b) The partial pressure of solute I gas phase is more than solid vapor pressure
    c) The vapor pressure is equal to partial pressure
    d) When sufficient heat is applied
16. What is the remainder product of sublimation called?
    a) Subliment
    b) Solute
    c) Solvent
    d) Sublimate
17. . Which of the following is not an example of sublimate?
    a) Camphor
    b) Naphthalene
    c) Iodine
    d) Nitrates
18. . Which of the following solids undergo sublimation?
    a) Sodium chloride
    b) Iodine crystals
    c) Sodium carbonate
    d) Sodium bicarbonate

19. How is propylene-propane mixture separated?
    a) Distillation
    b) Crystallization
    c) Adsorption
    d) Sublimation
20. The process of heating a liquid mixture to form vapours and then cooling the vapours to get pure component is called _____
    a) Crystallisation
    b) Distillation
    c) Chromatography
    d) Sublimation
21. Porcelain pieces are put into the distillation flask to avoid _____
    a) Overheating
    b) Uniform boiling
    c) Bumping of the solution
    d) None of the mentioned options
22. The boiling point of chloroform is _____
    a) 334 K
    b) 286 K
    c) 350 K
    d) 298 K
23. How aniline and chloroform can be separated?
    a) Sublimation
    b) Condensation
    c) Distillation
    d) Evaporation
24. Which of the following is not separated through distillation process?
    a) Acetone and water
    b) Aniline and chloroform
    c) Impurities in Sea water
    d) Milk and water
25. Which of the following will vaporize faster?
    a) Aniline
    b) Chloroform
    c) Water
    d) Kerosene
26. The distilled water is collected in _____
    a) Receiver
    b) Adapter

c) Condenser
d) Round bottom flask

27. The process of distillation is used for the liquids having _____
    a) Sufficient difference in their boiling point
    b) Sufficient difference in their melting point
    c) Sufficient difference in their solubility
    d) None of the mentioned
28. The residue in the round bottom flask is _____
    a) Volatile
    b) Non volatile
    c) None of the mentioned
    d) Volatile & Non volatile
29. In steam distillation, the liquid boils when the sum of vapour pressure due to organic liquid and due to water becomes _____
    a) Greater than atmospheric pressure
    b) Lesser than atmospheric pressure
    c) Equals to atmospheric pressure
    d) None of the mentioned
30. The organic liquid in steam distillation vaporizes at _____
    a) Lower temperature than its boiling point
    b) Higher temperature than its boiling point
    c) At its boiling point
    d) None of the mentioned
31. The purity of the compound is confirmed by _____
    a) Its melting point and boiling point
    b) Chromatographic technique
    c) Spectroscopy
    d) All of the mentioned
32. Select the correct statement from the following options.
    a) The transformation of solid to liquid is called melting and the reverse process is called freezing
    b) The transformation of solid to liquid is called freezing and the reverse process is called melting
    c) The transformation of liquid to solid is called melting and the reverse process is called freezing
    d) None of the mentioned
33. he temperature at which solid and liquid coexist in equilibrium is called _____
    a) Melting point of liquid
    b) Freezing point of liquid

c) Freezing point of solid
d) All of the mentioned

34. Select the incorrect statement from the following option.
    a) Every pure solid crystalline substance has a characteristic and unique melting point
    b) Impure sample of substance has different melting point
    c) Two different pure substances have same melting points
    d) Melting point serves as the criteria of purity of a solid substance
35. When the solid and liquid phase are in equilibrium, the temperature _____
    a) Increases gradually
    b) Decreases gradually
    c) Remains constant
    d) None of the mentioned
36. he melting point of ice is _____
    a) 0^0C
    b) 100^0C
    c) 4^0C
    d) -4^0C
37. The boiling point of a liquid is the temperature at which the vapour pressure _____
    a) Is equal to the internal pressure
    b) Is equal to the external pressure
    c) Is greater than an internal pressure
    d) Is lesser than an internal pressure
38. The normal boiling point of a liquid is the temperature at which it boils when the external pressure is _____
    a) 1 atm
    b) 2 atm
    c) 3 atm
    d) 5 atm
39. If the non-volatile impurities contaminate the liquid, its boiling point gets _____
    a) Depressed
    b) Elevated
    c) Remains same
    d) None of the mentioned
40. At 1 atm pressure, the boiling point of water is _____
    a) $0\ ^0$C
    b) 100^0C

c) -100^0C
d) None of the mentioned

41. What is meant by Halogenation?
    a) Introduction of Halogen atom
    b) Removal of Halogen atom
    c) Introduction & Removal of Halogen atom
    d) None of the mentioned
42. Which one of the following is the most important halogen in terms of preparations?
    a) Bromine
    b) Chlorine
    c) Iodine
    d) Fluorine
43. In which of the following reaction is Halogenation involved?
    a) Addition
    b) Substitution
    c) Replacement
    d) All of the mentioned
44. hionyl Chloride is not a chlorinating agent.
    a) True
    b) False
45. How to choose a Sulfonating reagent?
    a) Minimize side reactions
    b) Physical conditions
    c) Compound being sulfonated
    d) All of the mentioned
46. . Sulfonation in the benzene hydrocarbon series gives polystyrene.
    a) True
    b) False
47. The rate of Nitration depends upon what?
    a) Temperature
    b) Concentration
    c) Pressure
    d) All of the mentioned
48. . Is nitrosyl ion much weaker electrophile reagent than nitrile ion?
    a) True
    b) False
49. . How many $-NO_2$ groups are there in Picric acid?
    a) Zero
    b)One

c)Two
d)Three

50. What do you mean by RDS?
    a) Rate determining step
    b) Step on which the reaction depends
    c) It is the fastest step in the reaction
    d) All of the mentioned

UNIT 3
CARBOHYDRATES

1. Carbohydrates are also known as_____
    a) Hydrates of carbon
    b) Carbonates
    c) Glycolipids
    d) Polysaccharides

2. Class of carbohydrate which cannot be hydrolyzed further, is known as?
    a) Disaccharides
    b) Polysaccharides
    c) Proteoglycan
    d) Monosaccharide

3. Which class of carbohydrates is considered as non-sugar?
    a) Monosaccharides
    b) Disaccharides
    c) Polysaccharides
    d) Oligosaccharides

4. Sugars which differs from each other only around single carbon atom is called epimer.
    a) True
    b) False

5. A molecule of amylopectin which contains 1500 glucose residues and is branched after every 30 residues. How many reducing ends are there?
    a) 0
    b) 1
    c) 2
    d) 5

6. Mark the INCORRECT statement about sugar alcohol?
    a) Addition of -itol as a suffix
    b) A linear molecule that cannot cyclize
    c) Carbonyl groups reduced to a hydroxyl group
    d) Terminal -OH group oxidizes

7. Which of the following glycosidic linkage found in maltose?
   a) Glucose (α-1 – 2β) Fructose
   b) Glucose (α1 – 4) Glucose
   c) Galactose (β1 – 4) Glucose
   d) Glucose (β1 – 4) Glucose

8. Which of the following is also known as invert sugar?
   a) Sucrose
   b) Fructose
   c) Dextrose
   d) Glucose

9. Name the major storage form of carbohydrates in animals?
   a) Cellulose
   b) Chitin
   c) Glycogen
   d) Starch

10. Which of the following amino sugar are present in the bacterial cell wall?
   a) N-acetylmuramic acid
   b) Sialic acid
   c) Aminoglycoside
   d) Azide

11. . In carbohydrates which are the main functional groups are present?
   a) Alcohol & Carboxyl groups
   b) Aldehyde & Ketone groups
   c) Hydroxyl groups & Hydrogen groups
   d) Carboxyl groups & Others

12. Majority of the monosaccharides found in the human body are of which type stereoisomer?
   a) L-type
   b) D-type
   c) neutral
   d) racemic mixture

13. . Which is the simplest carbohydrate?
   a) Dihydroxy acetone
   b) Glycerldehyde
   c) Glucose
   d) Gulose

14. Which of the following is not a disaccharide?
   a) Sucrose
   b) Maltose

c) Lactose
d) Galactose

15. Which sugars are present in Sucrose?
a) Fructose and glucose
b) Glucose and glucose
c) Glucose and galatose
d) Fructose and galatose

16. Which of the following carbohydrate do not have any essential nutritional value?
a) Sucrose
b) Cellulose
c) Dextrin
d) Glycogen

17. Which of the following will not be reactive towards seliwanoff reagent?
a) Maltose
b) Inulin
c) Fructose
d) Sucrose

18. Anthrone method is preferred in the determination of
a) Carbohydrates
b) Proteins
c) Vitamins
d) Fats

19. Fructose and Glucose can be distinguished by
a) Selwinoff's reagent
b) Benedict's reagent
c) Fehling's reagent
d) Barfoed's reagent

20. Which of the following is an example of monosaccharide?
a) Galactose
b) Sucrose
c) Lactose
d) Maltose

21. Which of the following is an example of disaccharide?
a) Glucose
b) Fructose
c) Galactose
d) Maltose

22. In maltose, between which of the following carbons there is a linkage?
a) C1, C2
b) C2, C3

c) C1, C4
d) C2, C4

23. . Which of the following carbohydrates is a triose?
a) Glucose
b) Ribose
c) Ribulose
d) Glyceraldehyde

24. Lactose is a disaccharide of which of the following sugar units?
a) Glucose and fructose
b) Glucose and galactose
c) Glucose and sucrose
d) Glucose and ribose

25. Which compound is used with 1,2- dibromoethane for the formation of glycol?
a) Na_2CO_3
b) $NaHCO_3$
c) NaOH
d) CH_3COONa

26. Which of the following area of application restricts the use of cellulose nitrate?
a) photographic films
b) lacquor coatings
c) tool handles
d) printing inks

27. Which of the following acts as a swelling agent for the cellulose in preparation of cellulose acetate?
a) acetic anhydride
b) acetic acid
c) sulphuric acid
d) alkyl chloride

28. When all the monosaccharides in a polysaccharide are same type, such type of a polysaccharide is called a
a) Glycogen
b) Homoglycan
c) Heteroglycan
d) Oligosaccharide

29. In which of the following forms, glucose is stored in liver?
a) Glycogen
b) Starch
c) Dextrin
d) Cellulose

30. Which of the following are the storage polysaccharides?
a) Glycogen
b) Cellulose
c) Chitin
d) Glucose

31. Which of the following is an example of bacterial and yeast polysaccharide?
a) Starch
b) Glycogen
c) Cellulose
d) Dextrans

32. Starch and cellulose are the compounds made up of many units of [CPMT 1988, 89, 93]

A) Simple sugar

B) Fatty acid

C) Glycerol

D) Amino acid

33. Which one of the following is the sweetest sugar [AFMC 2002]

Fructose

Glucose

Galactose

Sucrose

34. Acid hydrolysis becomes important in the pulp and paper industry whenever we process wood fibers below pH 2 or so at elevated temperatures.
a) True
b) False

35. If one treats _____ with 6 % w/w aqueous sulfuric acid under reflux, glucose is obtained in high yield with little secondary decomposition.
a) Cellulose
b) Fructose
c) Starch
d) Lignin

36. Name the pathway for glucose synthesis by non-carbohydrate precursors?
a) Glycogenesis
b) Glycolysis
c) Gluconeogenesis
d) Glycogenolysis

37. What is the site for gluconeogenesis?
a) Liver
b) Blood
c) Muscles
d) Brain

38. Name the enzyme which is responsible for the conversion of pyruvate to phosphoenolpyruvate (PEP)?
a) Pyruvate carboxylase
b) Pyruvate carboxykinase
c) Glucose 6-phosphatase
d) Phosphofructokinase

39. Which of the following is the precursor of glycogen?
a) Glycerol 3-phosphate
b) Malate
c) UDP-glucose
d) Leucine and lysine

40. Metabolism is a source of water.
a) True
b) False

41. Which of the following is the general formula for carbohydrates?
a) $C_m(H_2o)_n$
b) $C_{m+1}(H_2o)_n$
c) $C_m(H_2o)_{n+1}$
d) $C_{m-1}(H_2o)_n$

42. Oligosaccharides are called Sugars.
a) True
b) False

43. Which of the following is not a function of Carbohydrates?
a) Storage of energy
b) Fuel for metabolism
c) Structural components
d) None of the mentioned

44. . Mina is a diabetics patient. One day she is tempted to eat junk food. Which is a relatively a better food product to eat – pasta or candy? Why?
a) Pasta- contains primary carbohydrates which increases blood sugar level

comparatively slowly and to a lesser level

b) Pasta- contains secondary carbohydrates which increases blood sugar level comparatively slowly and to a lesser level

c) Candy – contains primary carbohydrates which increases blood sugar level comparatively slowly and to a lesser level

d) Candy- contains secondary carbohydrates which increases blood sugar level comparatively slowly and to a lesser level

45. More than 50-55% of carbohydrates consumption is needed daily.

a) True

b) False

46. Sham is over-weight. Which of the following carbohydrates is he consuming maximum?

a) Refined

b) Unrefined

c) Glycogen

d) None of the mentioned

47. To overcome diabetes, a person can increase the intake of _____ and reduce the intake of _____

a) carbohydrates, proteins

b) proteins, fats

c) fats, carbohydrates

d) carbohydrates, fats

48. The breakdown of glucose is known as _____

a) Gluconeogenesis

b) Glycolysis

c) Glycogenolysis

d) Glycogenesis

49. Which of the following prevents fermentation in the presence of oxygen?

a) Long term Crabtree effect

b) Short term Crabtree effect

c) Kluyver effect

d) Pasteur effect

50. Fruits contain fructose which is a primary carbohydrate. These increase the blood sugar level. Why are fruits still recommended to be eaten?

a) They have exceptionally low Glycemic Index

b) They have exceptionally highly Glycemic Index

c) They’re secondary carbohydrates

d) None of the mentioned

UNIT 4

STUDY OF ALIPHATIC COMPOUND

1. Which one of the following compound is obtained by the oxidation of primary alcohol with nascent oxygen?
   a) Alkanal
   b) Alkanone
   c) Ether
   d) Amine

2. Which one of the following compound is obtained by the oxidation of secondary alcohols by [O]?
   a) Ketone
   b) Aldehyde
   c) Ether
   d) Amine

3. Secondary alcohols on catalytic dehydrogenation by Cu-Ni couple gives _____
   a) Ketone
   b) Aldehyde
   c) Carboxylic acid
   d) Amine

4. The reaction of carboxylic acids with alcohols catalysed by conc. H_2SO_4 is called _____
   a) Dehydration
   b) Saponification
   c) Esterification
   d) Neutralization

5. hich one is the correct order of reactivity of different types of alcohol towards hydrogen halide?
   a) 1° alcohol > 2° alcohol > 3° alcohol
   b) 2° alcohol > 1° alcohol > 3° alcohol
   c) 3° alcohol > 1° alcohol > 2° alcohol
   d) 3° alcohol > 2° alcohol > 1° alcohol

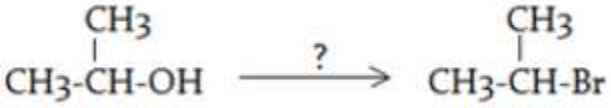
6. The dehydration of alcohols is an example of _____
   a) Bimolecular elimination/E2 reaction
   b) SN2 reaction
   c) SN1 reaction
   d) Unimolecular elimination/E1 reaction

7. Among the following, which is least acidic?
   a) Phenol
   b) O-cresol

c) p-nitrophenol
d) p- chlorophenol

8. Which of the following alcohols would be most soluble in water?
a) Propanol
b) Hexanol
c) Pentanol
d) Butanol

9. What is the best reagent to convert isopropyl alcohol to isopropyl bromide?



a) HBr
b) $SOBr_2$
c) Br_2
d) CH_3MgBr

10. The major reason that phenol is a better Bronsted acid than cyclohexanol is _____
a) it is a better proton donor
b) the cyclohexyl group is an electron donating group by induction, which destabilizes the anion formed in the reaction
c) phenol is able to stabilize the anion formed in the reaction by resonance
d) the phenyl group is an electron withdrawing group by induction, which stabilizes the anion formed in the reaction

11. Catalytic reduction (Hydrogenation) of carbon monooxide with H_2 under high pressure and temperature gives methyl alcohol. What is this process is known as?
a) Baeyer's test
b) Hofmann's reaction
c) Kolb process
d) BASF process

12. Which of the following statements is incorrect regarding preparation of alcohols?
a) Aldehydes and Ketones on catalytic reduction by [H] give primary alcohol and secondary alcohol respectively
b) Ketones on reaction with Grignard's reagent gives tertiary alcohol
c) Aldehydes on reaction with Grignard's reagent gives primary or secondary alcohol
d) Alkyl halides on reaction alcoholic potash gives alcohol

13. Which of the following steps is not used in the fermentation of starch into ethyl alcohol?
a) Hydrolysis of starch into maltose by diastase present in barley
b) Conversion of maltose into glucose by maltase present in yeast

c) Conversion of glucose into ethanol by zymase present in yeast
d) Conversion of sucrose into glucose and fructose by sucrase present in yeast

14. Which is the only alcohol that can be prepared by the indirect hydration of alkene?
a) Ethyl alcohol
b) Propyl alcohol
c) Isobutyl alcohol
d) Methyl alcohol

15. Among the alkenes which one produces tertiary butyl alcohol on acid hydration?
a) $(CH_3)_2C=CH_2$
b) CH_3-CH=CH-CH_3
c) $CH_3CH_2CH=CH_2$
d) $CH_3CH=CH_2$

16. Primary alcohol is gently heated to produce aldehyde in presence of acidified solution of which of the following compound?
a) hydroxide
b) dichromate
c) ethanol
d) ethanol

17. In the given reaction, what will be the product P?

$$R-\overset{\overset{O}{\|}}{C}-Cl \xrightarrow[Pd-BaSO_4]{H_2} P$$

a) RCH_2OH
b) RCOOH
c) RCHO
d) RCH_3

18. Which Catalyst is used in Rosenmund reduction?
a) Pd / $BaSO_4$
b) Zn-Hg couple
c) $LiAlH_4$
d) Ni/H_2

19. On heating calcium acetate and calcium formate, the product formed is which of the following?
a) CH_3COCH_3
b) CH_3CHO
c) $HCHO+CaCO_3$
d) $CH_3CHO+CaCO_3$

20. Catalyst $SnCl_2$/HCl is used in which of the following method of synthesis of aldehyde?

a) Stephen's reduction
b) Cannizzaro reaction
c) Clemmensen's reduction
d) Rosenmund's reduction

21. Aldehydes have which type of smell?
a) Fish like smell
b) Bitter almond smell
c) Pungent smell
d) Rotten egg like smell

22. What is the name of the process in which aldehyde get oxidise in presence of air?
a) Calcination
b) Autoxidation
c) Cannizzaro reaction
d) Baeyer villiger oxidation

23. Which of the following aldehyde shows oligomerization?
a) Acetaldehyde
b) Propanal
c) Butanal
d) Benzaldehyde

24. What will be the product if we add water to the aldehyde?
a) Alcohols
b) Epoxides
c) Geminal diols
d) Peroxides

25. Which of the following aldehyde is present as gas?
a) Acetaldehyde
b) Formaldehyde
c) Butyraldehyde
d) Benzaldehyde

26. Which one of the following compounds is prepared in the laboratory from benzene by a substitution reaction?
a) Glyoxal
b) Cyclohexane
c) Acetophenone
d) Hexabromo cyclohexane

27. Ketones can be prepared in one step from which of the following process?
a) Hydrolysis of esters
b) Oxidation of primary alcohol
c) Oxidation of secondary alcohol
d) Reaction of acid halide with alcohols

28. Ketones are prepared by which of the following name reaction?
a) Clemmensen's reduction
b) Cannizzaro reaction
c) Rosenmund's reduction
d) Oppenaur's oxidation

29. Isopropyl alcohol on oxidation gives which of the following?
a) Acetone
b) Acetaldehyde
c) Ether
d) Ethylene

30. Dry heating of calcium acetate gives which of the following?
a) Acetaldehyde
b) Ethane
c) Acetic acid
d) Acetone

31. Acetic acid is obtained when which of the given reaction takes place?
a) Methyl alcohol is oxidised with potassium permanganate
b) Calcium acetate is distilled in the presence of calcium formate
c) Acetaldehyde is oxidised with potassium dichromate and sulphuric acid
d) Glycerol is heated with sulphuric acid

32. Acetic acid is manufactured by the fermentation of which of the following reaction?
a) Ethanol
b) Methanol
c) Ethanal
d) Methanal

33. When benzyl alcohol is oxidised with $KMnO_4$, the product obtained is which of the following compound?
a) Benzaldehyde
b) Benzoic acid
c) CO_2 and H_2O
d) Benzophenone

34. . Which of the following gives benzoic acid on oxidation?
a) Chlorophenol
b) Chlorotoluene
c) Chlorobenzene
d) Benzyl chloride

35. Formic acid is obtained when which of the given reaction occurs?
a) Calcium acetate is heated with conc. H_2SO_4
b) Calcium formate is heated with calcium acetate

c) Glycerol is heated with oxalic acid at 110℃

d) Acetaldehyde is oxidised with $K_2Cr_2O_7$ and H_2SO_4

36. Hydrolysis of ester leads to the formation of which of the following products in basic medium?

a) Ether and alcohol

b) Alcohol and sodium carboxylate

c) Aldehyde and alcohol

d) Sodium carboxylate

37. What will be the product for the given reaction?

$C_2H_4 + CH_3CO_2H + 1/2\ O_2 \rightarrow ?$

a) Ethyl formate

b) Vinyl formate

c) Ethyl acetate

d) Methyl acetate

38. What is the characteristic smell for ester?

a) Fruity like smell

b) Fish like smell

c) Rotten egg smell

d) Alcoholic smell

39. Fries rearrangement reaction of phenol ester leads to the formation which type of product?

a) Ketone

b) Aldehyde

c) Alcohol

d) Alkene

40. What is the order or solubility in water of the following compound?

1) ethyl methanoate

2) ethyl butanoate

3) ethyl ethanoate

4) ethyl propanoate

a) 1 > 2 > 3 > 4

b) 1 > 3 > 4 > 2

c) 1 > 2 > 4 > 3

d) 3 > 1 > 4 > 2

41. An ether is more volatile than an alcohol having the same molecular formula. What is the reason for this difference?

a) dipolar character of ethers

b) alcohols having resonance structures

c) inter-molecular hydrogen bonding in ethers

d) inter-molecular hydrogen bonding in alcohols

42. Ethers may be used as solvents because they react only with which of the following reactants?

a) Acids
b) Bases
c) Oxidising agent
d) Reducing agents

43. . What are the products when ethyl isopropyl ether is cleaved with concentrated HI?

a) ethanol and 2-iodo-2-methylpropane
b) ethanol and 2-methylpropane
c) iodoethane and isopropyl alcohol
d) iodoethane and 2-methylpropane

44. What are the products when tert-butyl ethyl ether is cleaved with concentrated HI?

a) iodoethane and tert-butanol
b) iodoethane and 2-iodo-2-methylpropane
c) ethanol and 2-iodo-2-methylpropane
d) ethanol and tert-butanol

45. Which of the following is the commercial method of formation of ether?

a) Dehydration of alcohol
b) Williamson ether synthesis
c) Ullmann condensation
d) Preparation of epoxides

46. The amine formed from an amide by means of bromine and alkali has how many number of carbon atoms?

a) Same number of C atoms as that of amide
b) One less C atom than that of amide
c) One more C atom than that of amide
d) Two more C atoms than that of amide

47. Reduction of nitroalkanes yields which compound?

a) Acid
b) Alcohol
c) Amine
d) Diazo compounds

48. Which of the following compound is expected to be most basic?

a) Aniline
b) Methylamine
c) Hydroxylamine
d) Ethylamine

49. A solution of methyl amine shows which type of property with litmus paper?
a) Turns blue litmus red
b) Turns red litmus blue
c) Does not affect red or blue litmus
d) Bleaches litmus

50. By the presence of a halogen atom in the ring, what is the effect of this on basic properties of aniline?
a) Increased
b) Decreased
c) Unchanged
d) Doubled

UNIT 5
AROMATIC COMPOUNDS

1. Identify the correct statement which is related to aromatic hydrocarbon
a) It has only sigma bonds
b) It has only pi bonds
c) It has a sigma and two pi bonds
d) It has a sigma and delocalized pi bond

2. Select the incorrect option:
a) The aromatic hydrocarbon has a pleasant aroma (smell)
b) Some of the aromatic compounds are ring-shaped
c) Aromatic hydrocarbon can be either mono or polycyclic
d) Benzene is the simplest hydrocarbon

3. . Which among the following is not a property of aromatic hydrocarbon:
a) These compounds have very good aromaticity
b) These compounds have excellent stability
c) These compounds do not undergo nucleophilic substitutions but they undergo electrophilic substitutions
d) There exists a strong ratio between carbon and hydrogen

4. Arenes does not undergo:
a) Dehydrogenation
b) Coupling reaction
c) Halogenation
d) Cyclo additions

5. Which among these is the simplest example for polycyclic arenes?
a) Benzacephenanthrylene
b) Naphthalene
c) Pyrene
d) Dibenz-anthracene

6. Which among these is not a representative arene compound?
   a) Durene
   b) Picric chloride
   c) Aspirin
   d) Mesitylene

7. Arenes are polar. State true or false
   a) True
   b) False

8. The main sources of these arenes are:
   a) Petroleum
   b) Biogas and petroleum
   c) Petroleum and coal tar
   d) Natural gas

9. Benzene has a stronger Vander-Waal's force than Methylbenzene.(State true or false)

10. Benzene presents a very stable configuration.
   a) True
   b) False

11. The losses incidental to the neutralization of the nitrobenzene are directly proportional to what?
   a) Number of washes given
   b) The amount of water used
   c) All of the mentioned
   d) None of the mentioned

12. What percent of nitric acid is added to the nitrator to produce a mixed acid during the process of continuous nitration with fortified spent acid?
   a) 4%
   b) 63%
   c) 36%
   d) 45%

13. What is the formula of m-Dinitro benzene?
   a) (1,3)-Dinitrobenzene
   b) (1,2)-Dinitrobenzene
   c) (1,4)-Dinitrobenzene
   d) (1,5)-Dinitrobenzene

14. For preparation of Chloro-nitrobenzene which of the following position gives highest amount?
   a) Ortho
   b) Meta

b) Para
d) All of the mentioned

15. What is used for the production if dyes and isocyanates?
a) Nitrotoluenes
b) Toluene
c) Phenol
d) Amines

16. The nitrating agent is a _____ reactant.
a) Electrophilic
b) Nucleophilic
c) All of the mentioned
d) None of the mentioned

17. In which position does the nitro group enters?
a) Ortho
b) Para
c) Meta
d) All of the mentioned

18. Nitration products at ortho and para position predominates?
a) True
b) False

19. "-NO_2" produces which effect?
a) Both the effects
b) Does not produce any
c) +I effect
d) –I

20. The purification of products, during the formation of a(alpha)-nitronaphthalene , depends upon the following _____
a) Use of minimum solvent
b) Constant agitation
c) All of the mentioned
d) None of the mentioned

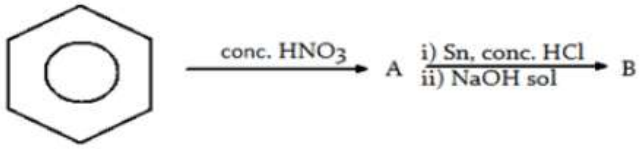
21. Aniline number is the minimum equilibrium solution temperature for _____ volume of aniline and lubricating oil.
a) More
b) Less
c) Equal
d) Very high

22. Aniline _____ with oil.
a) Immiscible
b) Forms crystals

c) Forms lumps
d) Miscible

23. Aniline is usually purified by which of the following method?
a) Steam distillation
b) Simple distillation
c) Vacuum distillation
d) Extraction with a solvent

24. What are A and B in the given sequence, respectively?



a) Aldehyde, nitro compound
b) Nitro compound, phenyl amine
c) Phenyl amine, nitro compound
d) Phenthalene, phenyl amine

25. Which type medium is required for the formation of aniline by reaction of aryl boric acid and HAS?
a) Acidic
b) Basic aqueous
c) Neutral dry
d) aqueous

26. What is the commercial method of preparation of phenol?
a) Dows process
b) From diazonium salt
c) By decarboxylation of salicylic acid
d) Hock method

27. What is the reagent which will react with cumene to give phenol?
a) Oxygen
b) Hydrogen
c) Nitrogen
d) Ozone

28. Phenol is obtained by heating aqueous solution of which of the following?
a) Aniline
b) Benzene diazonium chloride
c) Benzoic acid
d) Benzyl alcohol

29. On heating aqueous solution of benzene diazonium chloride, which of the following is formed?
a) benzene

b) chlorobenzene
c) phenol
d) aniline

30. The oxidation of toluene to benzaldehyde by chromyl chloride is called as which of the following?
a) Cannizzaro reaction
b) Wurtz reaction
c) Etard reaction
d) Reimer-Tiemann reaction

31. Benzaldehyde can be prepared by oxidation of toluene by which of the following reagent?
a) Acidic $KMnO_4$
b) $K_2Cr_2O_7$
c) CrO_2Cl_2
d) basic $KMnO_4$

32. Which of the following is the commercial method of preparation of benzaldehyde?
a) Oxidation of toluene
b) Oxidation of benzyl chloride
c) Oxidation of benzyl alcohol
d) Etard reaction

33. Which of the following cannot be used in formation of benzaldehyde by Grignard reagent?
a) HCN
b) Carbon monoxide
c) Ethyl format
d) HNC

34. When benzyl alcohol is oxidised with $KMnO_4$, the product obtained is which of the following compound?
a) Benzaldehyde
b) Benzoic acid
c) CO_2 and H_2O
d) Benzophenone

35. Which of the following gives benzoic acid on oxidation?
a) Chlorophenol
b) Chlorotoluene
c) Chlorobenzene
d) Benzyl chloride

36. Identify the wrong statement from the following?
a) Salicylic acid’s a monobasic acid

b) Methyl salicylate is an ester

c) Salicylic acid gives violet colour with neutral ferric chloride as well as brisk effervescence with sodium bicarbonate

d) Methyl salicylate does not occur in natural oils

37. Sulphonation of benzoic acid produces mainly which of the following?

a) o-sulphobenzoic acid

b) m-sulphobenzoic acid

c) p-sulphobenzoic acid

d) o- and p-sulphobenzoic acid

38. Benzene presents a very stable configuration.

a) True

b) False

39. Benzene can also be used to produce Maleic acid?

a) Yes

b) No

40. Sulfonation in the benzene hydrocarbon series gives polystyrene.

a) True

b) False

41. How to choose a Sulfonating reagent?

a) Minimize side reactions

b) Physical conditions

c) Compound being sulfonated

d) All of the mentioned

42. A primary amine can be converted to an alcohol by the action of which of the following?

a) Alkali

b) Nitrous acid

c) Reducing agent

d) Oxidizing agent

43. The amine which can react with $C_6H_5{-}SO_2{-}Cl$ to form a product insoluble in alkali shall be, is which of the following?

a) Primary amine

b) Secondary amine

c) Tertiary amine

d) Both primary and secondary amines

44. A mixture of benzene and aniline can be separated by which of the following?

a) Hot water

b) dil. HCl

c) dil. NaOH

d) Alcohol

45. In the reaction, what is the compound $C_6H_5N=CHC_6H_5$ is known as?

$C_6H_5CHO + C_6H_5NH_2 \rightarrow C_6H_5N=HCC_6H_5 + H_2O$

a) Aldol
b) Schiffs reagent
c) Schiffs base
d) Benedict reagent

46. What will be the product formed when phenol reacts with Br_2 in CCl_4 medium?
a) 3-Bromophenol
b) 4- Bromophenol
c) 3,5-Dibromophenol
d) 2,4,6-Tribromophenol

47. Which of the following aromatic compounds undergo Friedel–Crafts alkylation with methyl chloride and aluminum chloride?
a) Benzoic acid
b) Nitrobenzene
c) Toluene
d) Aniline

48. Identify the incorrect statement regarding aromaticity
a) It is the extra stability possessed by a molecule
b) p-orbitals must be planar and overlap
c) Cyclic delocalization takes place
d) It does not follow Huckel's rule

49. Aromatic rings do not have resonance structures. State true or false
a) False
b) True

50. Which of the following is the most activating in electrophilic aromatic substitution?
a) $-NO_2$
b) $-NHCOCH_3$
c) -CN
d) $-NH_2$

UNIT 1

ESTIMATION AND DETECTION OF ORGANIC COMPOUND

1. Carbon and hydrogen are detected by heating the compound with which of the following?
   a) Copper (II)oxide
   b) Iron(II)oxide
   c) Iron(III)oxide
   d) Copper(I)oxide

2. Which compound gets precipitated in the detection of carbon and hydrogen?
   a) Copper
   b) Carbon dioxide
   c) Calcium carbonate
   d) Copper sulphate
3. Identify the element that cannot be detected by Lassaigne's test.
   a) Nitrogen
   b) Fluorine
   c) Sulfur
   d) Phosphorous
4. Potassium can replace sodium in lassaigne's test.
   a) True
   b) False
5. What is Lassaigne's test extract called as?
   a) Fusion extract
   b) Sodium fusion extract
   c) Lassaigne extract
   d) Sodium extract
6. In the test for nitrogen, the sodium fusion extract is acidified with which of the following?
   a) Dilute sulphuric acid
   b) Dilute hydrochloric acid
   c) Concentrated hydrochloric acid
   d) Concentrated sulphuric acid
7. What is the color of the precipitate obtained in the test for sulphur?
   a) White
   b) Black
   c) Violent
   d) Blue
8. In case of both nitrogen and sulphur existence, Prussian blue is still the color of the end product.
   a) True
   b) False
9. A X color precipitate, which is Y in ammonium hydroxide indicates presence of chlorine. Identify X and Y.
   a) X = yellowish, Y = soluble
   b) X = yellow, Y = insoluble
   c) X = white, Y = insoluble
   d) X = white, Y = soluble

10. Which is the oxidizing agent used in the test for phosphorous?
    a) Hydrogen peroxide
    b) Potassium nitrate
    c) Sodium peroxide
    d) Nitric acid
11. Carbon and hydrogen are detected by heating the compound with _____ during quantitative analysis.
    a) carbon dioxide
    b) copper (II) oxide
    c) magnesium oxide
    d) sulphur dioxide
12. On complete combustion, 0.500 g of an organic compound gave 0.150 of carbon dioxide. Determine the percentage composition of carbon in the compound.
    a) 8.18%
    b) 81.8%
    c) 0.81%
    d) 81%
13. The amounts of water can be detected by the increase in the mass of _____ during quantitative analysis of hydrogen.
    a) potassium hydroxide
    b) sodium hydroxide
    c) sodium chloride
    d) calcium chloride
14. Dumas method is a method of estimation of nitrogen.
    a) True
    b) False
15. 0.350 g of an organic compound gave 100 ml of nitrogen collected at 250 K temperature and 700 mm pressure. Calculate the percentage composition of nitrogen in the compound. Use Dumas method.
    a) 25.70%
    b) 35%
    c) 35.71%
    d) 36.88%
16. In Kjedahl's method of estimation of nitrogen, the compound containing nitrogen is heated with _____
    a) concentrated hydrochloric acid
    b) concentrated sulphuric acid
    c) nitric acid
    d) dilute hydrochloric acid

17. Using Carius method, find out the percentage of bromine in the compound if 0.450 g of organic compound gave 0.200 g of AgBr. (Given: molar mass of Ag = 108; molar mass of Br = 80)
    a) 18%
    b) 17%
    c) 17.68%
    d) 18.91%
18. In the estimation of sulphur, the organic compound is heated with _____ in a carius tube.
    a) sodium hydroxide
    b) sodium peroxide
    c) potassium hydroxide
    d) calcium chloride
19. Estimation of oxygen can be determined by Carius method.
    a) True
    b) False
20. The elements present in a compound are determined by apparatus called _____
    a) analyzer
    b) CHN elemental analyzer
    c) chemical analyzer
    d) elemental analyzer
21. Identify the one which does not come under the chemical methods of quantitative analysis?
    a) Gravimetric
    b) Titrimetric
    c) Volumetric
    d) Magnetic susceptibility
22. Quantitative analysis is one which is used for separating out the specific constituents from a mixture.
    a) True
    b) False
23. Select the incorrect statement regarding analytical balance.
    a) It is the fundamental kit in quantitative analysis
    b) It measures samples very accurately
    c) It could measure the difference in mass upto 0.1 mg
    d) It is not a sensitive instrument
24. Ammonia evolved from 0.75 g of the soil sample in the Kjeldahl's method for nitrogen estimation, neutralises 10 ml of 1M H_2SO_4. Find the percentage of nitrogen present in the soil

(a) 35.33

(b) 37.33

(c) 43.33

(d) 45.33

25. Which of the following methods is best suited for the separation of a mixture containing naphthalene and benzoic acid

(a) Crystallisation

(b) Chromatography

(c) Sublimation

(d) Distillation

26. Why do we boil the extract with conc. HNO_3 in Lassaigne's test for halogens?

(a) to increase the concentration of NO_3^- ions

(b) to increase the solubility product of AgCl

(c) it increases the precipitation of AgCl

(d) for the decomposition of Na_2S and NaCN formed

27. In Carius method of estimation of halogens, 250 mg of an organic compound gave 141 mg of AgBr. The percentage of bromine in the compound is: (at. Mass Ag = 108; Br = 80)

a) 48

b) 60

c) 36

d) 24

28. In Carius method, for the estimation of halogen, 0.15g of an organic compound gave 0.12g of AgBr. The percentage of bromine in the compound is

a) 34.04%

b)66.04%

c)44.04%

d)54.04%