**21CYB101J/CHEMISTRY**

**UNIT -2**

## 1. Passivity on a metal is due to

1. Higher EMF

b) Lower EMF

**c) Oxide film formation**

d) stability

2.The process of gaining of electrons by metal ions with discharge of metal is called

## De-electronation

1. Electronation
2. Reduction
3. Cathode

3.The anode of the galvanic cell has

1. Positive polarity

## Negative polarity

1. No polarity
2. Neutral

4. According to the convention, the Daniel cell is represented as

## Zn l ZnSO4ll CuSO4 l Cu, E = 1.09 volt

1. Zn l ZnSO4ll Cu l CuSO4 , E = 1.09 volt
2. ZnSO4 l Zn ll CuSO4 l Cu, E = 1.09 volt
3. Zn l ZnSll CuSO4 l Cu, E = 1.09 volt

5. Decrease in free energy can be given by -ΔG=

## nFE

1. n/FE
2. nF/E
3. F/nE

6. Generally, electrode potential refers to

## Reduction potential

1. Oxidation potential
2. Electron potential
3. Cannot be determined

7.The following are state functions EXCEPT

1. H – enthalpy

## q – heat

1. E – internal energy
2. S – entropy

8. Gibbs function G is given by

## H-TS

1. U+PV
2. E+PV
3. U-TS

9. Which of the following is the correct equation?

a) E = Eo [(2.303RT)/nF] log10 [H+].

b) E = Eo+[(2.303RT)/nF] log10 [H+].

## c) E = Eo – [(2.303RT)/nF] log10 [H+].

d) E = Eo/ [(2.303RT)/nF] log10 [H+].

10. If the standard hydrogen electrode is used as the reduction electrode, then the emf is given

by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a) Ered = -Eo + (5/n) log10 [H+].

b) Ered = -Eo – (0.0591/n) log10 [H+].

c) Ered = Eo + (0.0591/n) log10 [H+].

d) Ered = Eo -(0.0591/n) log10 [H+].

11. \_\_\_\_\_\_\_\_\_\_\_\_is the device used to measure the emf of the cell.

1. Voltmeter

## Potentiometer

1. Ammeter
2. Multimeter

12.In corrosion, as a result of decay, the metals are not converted into

1. Oxides
2. Hydroxides
3. Carbonates

## Peroxides

13.Iron undergoes corrosion to produce coloured hydrated ferric oxide

1. Red

## Brown

1. Green
2. Blue

14.The rusting iron of Iron is

## Oxidation corrosion

1. Liquid metal corrosion
2. **Wet corrosion**
3. Corrosion by other gases

15.MoO layer is ----- layer that leads to corrosion.

* 1. Stable
  2. Unstable

## Volatile

* 1. Porous

16. Helmholtz free energy A is expressed as

a) A=U+TS

b) A=H+TS

**c) A=U-TS**

d) A=H-TS

17. In a reversible process ∆sys + ∆surr is

* 1. > 0
  2. < 0
  3. ≥ 0

**d) =0**

18. Identify the hard acid from the following:

**a) AlCl3**

b) N2H4

c) H2O

d) OH (-)

19.Entropy change for a spontaneous process is

a) (-) ve

**b) (+) ve**

c) 0

d) Both a and b

20. In a reversible process, entropy of the system

a) increases

b) decreases

**c) zero**

d) remains constant

21.The name of the equation showing relation between electrode potential, standard potential

(Eo) and concentration of ions in solution is

a) Kohlrausch equation

b) **Nernst equation**

c) Faraday equation

d) Ohm’s equation

22.Corrosion of metals involves

a) Physical reaction

**b) Chemical reaction**

c) Both a and b

d) Only A

23. A spontaneous process

* 1. Is reversible.

## Is irreversible.

c) May be reversible or irreversible depending on whether equilibrium is maintained throughout the process.

d) May be reversible or irreversible depending on the value of ΔS.

24.When heat is added to a pure liquid

1. the temperature increases and the entropy is unchanged.

## the temperature increases and the entropy increases.

1. the temperature increases and the entropy decreases.
2. the temperature is unchanged and the entropy increases.

25. Which statement is **incorrect**?

1. At constant pressure, Description: https://www.chem.tamu.edu/class/fyp/mcquest/pics/delta-s.gifH = Description: https://www.chem.tamu.edu/class/fyp/mcquest/pics/delta-s.gifE + PDescription: https://www.chem.tamu.edu/class/fyp/mcquest/pics/delta-s.gifV
2. The thermodynamic symbol for entropy is S.
3. Gibbs free energy is a state function.

## d) For an endothermic process, ∆H is negative.

26. For the reduction of silver ions with copper metal the standard cell potential was found to

be +0.46V at 25º C. The value of standard Gibbs energy, ΔGº will be (F = 96500 C mol-1)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a. -44.5KJ

b. -98.0KJ

c. -89.0KJ

d. -89.0J

27.The Helmholtz function F is given by

## U-TS

1. U+TS
2. -U-TS
3. -U+TS

28. In Pourbaix diagram the redox reaction, *Fe*2++2*e*−→*Fe*(*s*) is

1. pH dependent

## pH independent

1. solvent dependent
2. solvent independent

29. Anhydrous inorganic liquid metal surface in absence of moisture undergoes

1. Wet corrosion

## Dry corrosion

1. Galvanic corrosion
2. Pitting corrosion

30. Joule/Kelvin is unit of

* 1. energy
  2. **entropy**
  3. emf
  4. power

31. …………is a measure of randomness of a system.

* 1. **entropy**
  2. internal energy
  3. heat flow
  4. enthalpy

32. Which one of the following thermodynamic quantities is a state function?

1. **Gibbs free energy**
2. temperature
3. power
4. work

33. The correct equation is

* 1. ΔG = nF/E
  2. ΔG = n/FE
  3. **ΔG = - nFE**
  4. ΔG = F/nE

34. Which of the following statement is correct about galvanic cell?

* 1. oxidation takes place at the cathode
  2. **reduction takes place at the cathode**
  3. reduction takes place at the anode
  4. anode is negatively charged

35. Wet corrosion takes place on

* 1. **anode**
  2. cathode
  3. near cathode
  4. near anode

36. Wet corrosion products are formed on

* 1. anode
  2. **cathode**
  3. conducting medium
  4. near anode

37. Dry corrosion products are formed on

* 1. **anode**
  2. cathode
  3. conducting medium
  4. near cathode

38.The rate of dry corrosion is ………than wet corrosion

* 1. **lower**
  2. faster
  3. average
  4. moderate

39. Passivation is due to formation of

* 1. higher EMF
  2. lower EMF
  3. **metal oxide layer on metal**
  4. electrode potential

40.Total energy of a system remains constant according to

* 1. **first law of thermodynamics**
  2. second law of thermodynamics
  3. third law of thermodynamics
  4. newton’s law

41. E = Eo – [(2.303RT)/nF] log10 [H+] is the formula of …………

* 1. **Nernst equation**
  2. Newton equation
  3. Gibbs equation
  4. Free energy equation

42. Which of the following properties is most likely to be retained during the process of

corrosion?

1. Malleability
2. Ductility
3. Conductivity
4. **Colour**

43. The reason for conductivity of electrolytic conductors is \_\_\_\_\_\_\_\_\_\_\_\_\_

1. Flow of free mobile electrons
2. **Movement of ions**
3. Either movement of electrons or ions
4. Cannot be said

44. Which corrosion product is volatile in nature \_\_\_\_\_\_\_.

1. Fe2O3
2. **MoO3**
3. Fe3O4
4. FeO

45. The area in which electrochemical corrosion takes place is

1. **Anodic area**
2. Cathodic area
3. Near cathode
4. Near anode

46. In anodic reaction of corrosion metal is dissolved by releasing \_\_\_\_\_\_\_.

1. Pair of electrons
2. **Free electron**
3. Ions
4. Current in electrolytic solution.

47.The green film of formed on the surface during corrosion of Cu contains CuCO3 and

\_\_\_\_\_\_\_.

1. BaCO3
2. Ba (OH)2
3. **Cu (OH)2**
4. CuO

48. The low solubility of beryllium sulphate in water is due to \_\_\_\_\_\_\_.

1. High inflammable energy
2. **Low Energy of dissociation**
3. Low inflammable energy
4. Ionic bond

49. The correct statement about cell potential is \_\_\_\_\_\_\_.

1. sum of the electrode potentials of the cathode and anode
2. **difference between the electrode potentials of the cathode and anode**
3. half of the sum of the electrode potentials of the cathode and anode
4. twice the difference between the electrode potentials of the cathode and anode

50. The enthalpy change in an exothermic reaction is shown with

1. **negative values**
2. positive values
3. neutral
4. constant

51. The incorrect statement about entropy is

1. S(monoclinic) > S(rhombic)
2. **C(diamond) > C(graphite)**
3. H2O(g) > H2O(l)
4. O3(g) > O2(g)

52. The Gibbs free energy change in a spontaneous process is equal to the

1. heat content of the system
2. entropy changes of the system
3. work of expansion
4. **useful work**

53. Which of the following is a state function?

1. q
2. w
3. **qrev/T**
4. qw

54.Which statement is incorrect?

* 1. At constant pressure, https://www.chem.tamu.edu/class/fyp/mcquest/pics/delta-s.gifH = https://www.chem.tamu.edu/class/fyp/mcquest/pics/delta-s.gifE + Phttps://www.chem.tamu.edu/class/fyp/mcquest/pics/delta-s.gifV
  2. The thermodynamic symbol for enthalpy is H.
  3. Gibbs free energy is a state function.
  4. **For an endothermic process, https://www.chem.tamu.edu/class/fyp/mcquest/pics/delta-s.gifH is not positive.**

55.The purpose of the salt bridge in an electrochemical cell is to \_\_\_\_\_\_\_\_\_\_.

* 1. increase electrons
  2. **maintain electrical neutrality**
  3. decrease electrons
  4. decrease electrical neutrality

56. Fe2O3.xH2O is chemical formula for

1. iron catalyst
2. iron metal
3. hydroxyapatite
4. **rust**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**UNIT -3**

1.The infinity of intermediate conformations are called?   
**a) Skew conformations**  
b) Staggered conformations  
c) Eclipsed conformations  
d) Gauche

2. The potential energy of n-butane is minimum for?   
a) Skew conformations  
**b) Staggered conformations**c) Eclipsed conformations  
d) Gauche

3. The potential energy of n-butane is maximum for?   
a) Skew conformations  
b) Staggered conformations  
**c) Eclipsed conformations**d) Gauche

4.The relative instability of any of the intermediate skew conformations is due to?   
a) Lateral strain  
b) Shear strain  
c) Longitudinal strain  
**d) Torsional strain**

5.In gauche conformations, the methyl groups are?   
**a) 600 apart**  
b) 900 apart  
c) 1800 apart  
d) 3600 apart

6. Which of the following is least stable?   
a) Anti conformation  
b) Gauche conformation  
c) Staggered conformation  
**d) Eclipsed conformation**

7.When the nucleophile: OR attacks the RX, the resultant product will be?  
a) R – OH  
**b) ROR**c) R:CN  
d) RNHR

8.Which step in SN1 reaction is a slow rate determining step?   
a) Attack of nucleophile  
b) Formation of racemic mixture  
**c) Formation of transition state**d) Both a and b

9.Which of the following act as electrophile in halogenation?   
a) Nitronium ion  
b) Sulphonium ion  
**c) Halonium ion**d) Acylium ion

10.Which of the following is an initiator molecule in the free radical polymerisation?   
**a) Benzoyl peroxide**  
b) Sulphuric acid  
c) Potassium permanganate  
d) Chromium oxide

11.Aldehydes and ketones are formed from

a) the dehydration of alcohols

**b) the oxidation of alcohols.**

c) the addition of nucleophiles to alkenes

d) the elimination of alcohols

12.Losing of small molecule from original organic molecule is------

**a) Elimination reaction**

b) Substitution reaction

c) Addition reaction

d) Both A and D

13. In a free radical reaction, free radicals are formed at----.

a) Initiation step

b) propagation step

c) termination step

**d) both a and b**

14. An acceptor of pair of electrons is termed as?

* 1. Nucleophile

**b) electrophile**

c) carbocation

d)Anion

15.Drugs that are used to diagnose, cure and prevent disease are called?

1. **pharmaceutical drugs**
2. addictive drugs
3. industrial drugs
4. single cell drugs

16.Which of the following would exhibit co-ordination isomerism?

# a) **[Cr (NH3)6] [Co (CN)6]**

# b) [Co(en)2Cl2]

# c) [Cr (NH3)6] Cl3

# d) [Cr(en)2Cl2]+

17. Exchange of co-ordination group by a water molecule in complex molecule results in ----

(a) Ionization isomerism

(b) Ligand isomerism

**(c) Hydration isomerism**

(d) Geometrical isomerism

18.Which would exhibit co-ordination isomerism?

1. **[Cr (NH3)6)] [Co (CN)6]**
2. [Co(en)2Cl2]
3. [Cr (NH3)6] Cl3
4. [Cr(en)2Cl2]

19.Nucleophilic substitution near takes place when halogeno alkanes is added with aq. solution

of

1. Sodium Chloride

b) Sodium Manganate

**c) Sodium Hydroxide**

d) Sodium chlorate

20.Identify reducing agent the following

1. OSO4
2. PCC
3. **LiAlH4**
4. K2Cr2O7

21.Which of the following compounds will exhibit cis-trans isomerism?

* 1. **2-butene**
  2. 2-butyne
  3. 2-butanol
  4. Butanal

22.The isomers which can be inter converted through rotation around a single bond are:

## conformers

* 1. diastereomers
  2. enantiomers
  3. positional isomers

23. A low concentration of nucleophile favours the   
 a) SN2 mechanism  
 **b) SN1** mechanism c) Both a and b  
 d) E1 mechanism

24.Which of the following is rate determining step in electrophilic substitution reaction?   
 a) Generation of electrophile  
 **b) Attack by an electrophilic reagent on benzene ring**  
 c) Formation of product  
 d) both a and c

25. Which of the following is an example of optically active compounds without chirality?   
 a) Tartaric acid  
 **b) Sulfonium salt**  
 c) Diphenic acid  
 d) Glyceraldehyde

26. Which of the following is not an optically active compound?   
 a) 1,7- Dicarboxylic Spiro Cycloheptane  
 b) 1,3- Diphenylpropadiene  
 **c) Meso-tartaric acid**  
 d) Glyceraldehyde

27. What type of reaction takes place upon treatment of a ketone with HCN to form a cyanohydrin?   
 **a) Nucleophilic addition**  
 b) Nucleophilic substitution  
 c) Electrophilic addition  
 d) Electrophilic substitution

28.Identify the compound with the highest ring strain   
 a) Cyclomethane  
 **b) Cyclopropane**  
 c) Cyclobutane  
 d) Cyclopentane

# 29. [Co (NH3)5NO2] Cl2 and [Co (NH3)5 (ONO)] Cl2 are related to each other as?

a) Geometrical isomers

b) Optical isomers

**c) Linkage isomers**

d) Coordination isomers

30.The dehydration of alcohols is an example of \_\_\_\_\_\_\_\_

a) Bimolecular elimination/E2 reaction

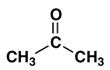
b) SN2 reaction

c) SN1 reaction

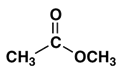
**d) Unimolecular elimination/E1 reaction**

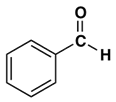
31.Which is unreactive in hydride reduction with NaBH4?

a)



b)

c) 



d)

32.The major product formed in the reaction of with HI is

1. CH3-CH2-CH2-CH-I

|

CH3

1. CH3-CH-CH2-CH2

**|**  **|**

I CH3

**I**

**|**

1. **CH3- CH2 - C-CH3**

**|**

**CH3**

1. CH3-CH2-CH=CH2 + CH3I

33.The most suitable reagent for the following transformation is



**a**) **KMnO4**

b) OsO4

c) K2Cr2O7

d) PCC

34. Draw a Newman projection of butane (C4H10) viewed along the central C–C bond and

showing the lowest energy conformation. One of the following statements describes the

diagram provided it is drawn correctly. Which statement is correct?

1. The Newman projection shows two methyl groups mutually eclipsed.
2. The Newman projection shows a methyl group and an H atom mutually staggered.
3. The Newman projection shows a methyl group and an H atom mutually eclipsed.
4. **The Newman projection shows two methyl groups mutually staggered.**

35.Which among the following is the strongest oxidising agent?

a) H2O2

**b) O3**

c) K2Cr2O7

d) KMnO4

36.Which is unreactive in hydride reduction with NaBH4?

a) CH3CHO

b) CH3COCH3

**c) CH3COOCH3**

d) CH4

37.What is the other name for the intra-molecular Claisen condensation?

a) Perkin condensation

b) Stobbe condensation

c) Knoevenagel condensation

**d) Dieckmann condensation**

38.Cyclopropane with bromine in the presence of UV light undergoes— reaction ?

a) Addition

**b) Substitution**

c) Redox

d) Elimination

39.Identify the compound with the highest ring strain?

a) Cyclomethane

**b) Cyclopropane**

c) Cyclobutane

d) Cyclopentane

40.The dehydration of alcohols is an example of \_\_\_\_\_\_\_\_

a) Bimolecular elimination/E2 reaction

b) SN2 reaction

c) SN1 reaction

**d) Uni-molecular elimination/E1 reaction**

41. Draw a Newman projection of butane (C4H10) viewed along the central C–C bond and showing the lowest energy conformation. One of the following statements describes the diagram, provided it is drawn correctly. Which statement is correct?

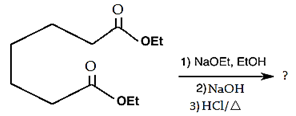
a) The Newman projection shows two methyl groups mutually eclipsed.

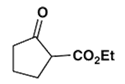
b) The Newman projection shows a methyl group and an H atom mutually staggered.

c) The Newman projection shows a methyl group and an H atom mutually eclipsed.

**d) The Newman projection shows two methyl groups mutually staggered.**

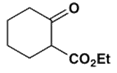
42.What will be the product of the following intramolecular Claisen condensation?



a) 

b) https://lh4.googleusercontent.com/12J67vcCFIYnhAvSOUZc6w19jh-sIlfhbRUTMCQTwPPTN5YQulAeLzirKbQ7W6FCFdOr1MB8iwLw2sZzFw4v09MiOuIjg0GxzQvFqm8EjTJVPvlZANVR9r83ZML1ZyKYAQB8vGwbuDNK0ag

**c)** 

d) 

43. Cardiovascular effects can be prevented or treated [ if the patients already had a heart attack or stroke] only by taking

a) Ibubruphen

b) Acetaminophen

c) Ketoprofen

**d) Acetylsalicylic acid**

44.Select the incorrectstatement from the following option?   
a) Racemic modification is an equimolar mixture of dextrorotatory and levo rotatory isomers  
b) Meso compounds contains more than one chiral carbon centre  
**c) Meso compounds are externally compensated**  
d) Racemic mixture is designated as dl-pair

45. How many optical isomers are possible in a compound with one chiral carbon?   
a) 5  
b) 4  
c) 2  
**d) 3**

46.Which of the following compounds would show optical isomerism?   
**a) CH3 – CH(OH) COOH**b) H2N CH(CH3)2  
c) (CH3)2 CHCHO  
d) H2N CH2 COOH

47.The number of configurational isomers of molecules having (n) different chiral carbons is?   
**a) 2n**  
b) 2n  
c) 2n-1  
d) 2n+1

48.The number of racemic forms of molecules having (n) different chiral carbons is?   
a) 2n  
b) 2n  
**c) 2n-1**d) 2n+1

49. For a molecule with two like chiral carbon atoms, the number of optically inactive form is?   
**a) 1**b) 2  
c) 3  
d) 4

50. Which of the following is used in the sulphonation of benzene?

1. **sulphuric acid**
2. nitric acid
3. phosphoric acid
4. acetic acid

51. Antipyretics are used to

* 1. **reduce body temperature**
  2. reduce vomiting
  3. reduce nausea
  4. increase body temperature

52. Analgesics are used to

* 1. **reduce pain**
  2. reduce nausea
  3. increase ache
  4. increase pain

53. Which statement about aspirin is false.

* 1. **Aspirin belongs to narcotic analgesics.**
  2. It is effective in relieving pain.
  3. It has anti blood clotting action.
  4. It is a neurologically active drug.

54. Which is most reactive species?

1. free radical
2. nucleophile
3. electrophile
4. cation

55. Which is electron deficient species?

1. free radical
2. nucleophile
3. **electrophile**
4. anion

56. The chemical formula of aspirin is

1. Methoxy benzoic acid
2. Methyl Salicilate
3. **Acetyl Salicillc acid**
4. Phenyl Salicilate

57.The most stable free radical among the following is

1. C6H5CH2CH2
2. **C6H5CHCH3**
3. CH3CH2
4. CH3CHCH3

58.Geometrical Isomerism is shown by

1. CH2=C(Br)I
2. CH**3CH=C(Br)I**
3. (CH3)2C=C(Cl)Br
4. CH3CH=CCl2

59. KMnO4 acts as an oxidizing agent in

1. Acidic medium only
2. Neutral and acidic medium
3. Neutral and alkaline medium
4. **Neutral, acidic and alkaline medium**

60.The drugs used to get relief from pain are called

1. Antipyretics
2. **Analgesics**
3. Antibiotics
4. Antiseptics

61.For a molecule with two like chiral carbon atoms, the number of optically active form is?   
a) 4  
b) 3  
c) 1  
**d) 2**

62.The potential energy of n-butane is not maximum for \_\_\_\_\_\_\_\_\_\_\_.

* 1. Skew conformations
  2. **Staggered conformations**
  3. Eclipsed conformations
  4. Gauche

63. Which of the following acts as catalysis in the nitration of benzene?

1. Conc. HNO3
2. Conc. H2SO4
3. **both A and B**
4. H3PO4

64. The aldehydes give ……….. on treated with Lithium aluminium hydride.

* 1. **Alcohols**
  2. benzene
  3. toluene
  4. furan

65.The Dieckmann condensation reaction gives

* 1. Alkane
  2. **cyclic β-ketoesters**
  3. alocohol
  4. acyclic β-ketoesters

66. Paracetamol is synthesized from

* 1. o-aminophenol and acetic anhydride
  2. **p-aminophenol and acetic anhydride**
  3. methyl amine and phenol
  4. phenol and amine

67.Aspirin is chemically known as…………………

* 1. methyl salicylic acid
  2. phenyl salicylic acid
  3. **acetylsalicylic acid**
  4. methanol

68. Chiral molecules are those which are

* 1. Shows geometrical isomerism
  2. Superimposable on their mirror images

## Not superimposable on their mirror images

## Unstable molecules

69.Primary amines are formed upon …………of Primary amides.

1. reduction
2. **oxidation**
3. acylation
4. alkylation

70. The best class of drugs is based upon\_\_\_\_\_\_\_\_\_.

1. chemical structure.
2. drug action.
3. **molecular targets.**
4. pharmacological effect

71. Which is the example of elimination reaction?

1. Hydration
2. **Dehydration**
3. Halogenation
4. Alkylation

72. The compound of the formula CH3CO(CH2)5CH=CHCOOH would be expected to

I: rotate the plane polarised light

II: contain chiral centre

III: Contain three stereo centres

IV: show geometrical isomerism

1. only I, II, III correct
2. only II, IV correct
3. I, II, III, IV correct
4. **only IV correct**

73. Which isomers are not separable from their mixture by any physical method of separation?

1. Enantiomers

2. Conformational isomers

3. Geometrical isomers

4. Functional isomers

* 1. only I and 2 correct
  2. only IV
  3. I, II, III, IV
  4. **only 2,3**

74. Which of the following is not an example of chiral object?

a. Cylindrical helix

## b. Square box

c. Sandal or shoe

d. Glove

75. Chiral molecules which are non-super-imposable mirror images of each other are called

a. Diastereomers

b. Meso compounds

c. Racemic mixture

## d. Enantiomers

76. Select the correct statement from the following option

1. Enantiomer rotate plane of polarised light in opposite direction and to different extent
2. Enantiomer rotate plane of polarised light in same direction but to different extent
3. Enantiomer rotate plane of polarised light in same direction and to same extent
4. **Enantiomer rotate plane of polarised light in opposite direction but to same extent**

77. The plane which divides the molecule into two equal parts so that each half is the mirror

image of another half is called -----.

a. Centre of symmetry

## b. Plane of symmetry

c. Axis of symmetry

d. Angle of symmetry

78.When a molecule has a plane of symmetry, it will be

## a. Optically inactive

b. Optically active

c.Both optically active and optically inactive

d. Enantiomer

79. Diastereomers are

a. Geometrical isomers

b. Mirror images

c. Non-mirror images

d. Unstable molecules

80.Which of the following is not a priority rule for R, S-Configuration?

a. If the four atoms attached to the chiral centre are all different, priority depends on

atomic number, with the atom of lower atomic numbers getting lower priority.

b. If the two atoms attached to chiral centre are same, the atoms attached to each of

these first atoms are compared.

c. When there is a double bond or triple bond, both atoms are considered to be

duplicated or triplicated.

## d. If the four atoms attached to the chiral centre are all different, priority depends

## on atomic number, with the atom of higher atomic numbers getting lower

## priority.

81. A centre of symmetry is equivalent to fold alternating axis of symmetry.

a) One

## b) Two

c) Three

d) Four

82. Select the **incorrect** statement from the following option.

a) The physical properties of enantiomers are identical

b) In symmetrical environment, the chemical properties of enantiomers are identical

## c)The enantiomers react at same rate and form products in same amounts in asymmetrical environment

d) Enantiomers have different solubility in same chiral solvent

83. A plane of symmetry is equivalent to ------------ fold alternating axis of symmetry.

## a) One

b) Two

c) Three

d) Four

84. If our eyes travel in counter clockwise direction from the ligand of highest priority to the

ligand of lowest priority, the configuration is

a) R-Configuration

## b) S-Configuration

c) E-Configuration

d) C-Configuration

85.According to the Cahn Ingold Prelog selection rules, the decreasing order of preference is

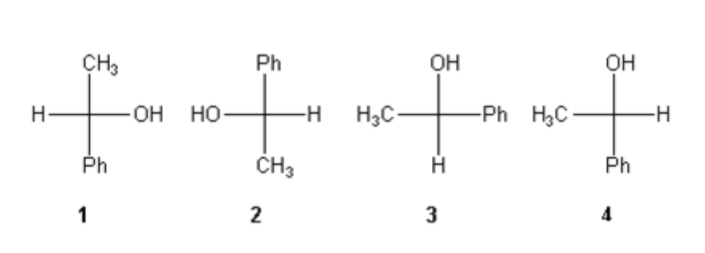
## a) –NH2> -C6H5> -CH(CH3)2> -H

b) –CH(CH3)2> -C6H5> -H> -NH2

c) –NH2> -CH(CH3)2> -C6H5> -H

d) -C6H5> -CH(CH3)2>–NH2> -H

86. Which of the following Fischer projections is different from the other three?

****

1. 1
2. 2
3. 3
4. 4

87.The entropy of an isolated system always and reaches when equilibrium is

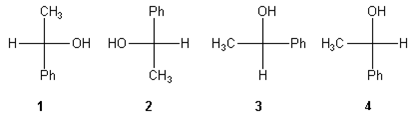
reached.

1. remains constant, maximum
2. decreases, minimum

## increases, maximum

1. decreases, constant

88. Which of the following Fischer projections is different from the other three?



a) 1

b) 2

c) 3

**d) 4**

89. Stereoisomerism is the study of ……………. of the molecules

1. **3D orientation**
2. 2D orientation
3. 1D orientation
4. No orientation

90. The isomers which are having same molecular formula, but different configurations are

called as

1. Structural isomers
2. **Stereoisomers**
3. positional isomers
4. tautomers

91. Geometric isomers are different from

* 1. **Enantiomer**
  2. diastereomer
  3. Both
  4. non-mirror images

92. Enantiomer are not

* 1. Mirror image only
  2. achiral
  3. **superimposable mirror images**
  4. non-specific images

93.Which is used to differentiate d- and l-isomers?

1. heat
2. temperature
3. **polarized light**
4. pressure

94. An equal proportion of two enantiomers is called as a \_\_\_\_\_\_\_\_\_\_\_\_

* 1. cis/trans mixture
  2. mirror image
  3. constitutional mixture
  4. **racemic mixture**

95. Which ………… nomenclature not used to differentiate enantiomers.

1. R/S
2. **E/Z**
3. +/–
4. D/L

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