Stereochemistry

MCQ's

1) Stereochemistry deals with study of ..... structure of compound.
   a) 2D
   b) 3D
   c) 1D
   d) All of these

2) Compounds with same molecular formula but different structural formulae is known as ...
   a) Isomers
   b) Optical activity
   c) Isotopes
   d) Inversion

3) Ethanol and Dimethyl ether are ....
   a) Structural Isomers
   b) Stereoisomers
   c) Enantiomers
   d) Diastereomers

4) Ethoxy ethane and methoxy propane are ....
   a) Enantiomers
   b) Conformational isomers
   c) Metamers
   d) Optical isomers

5) 2-propanone and 1-propanal are ....
   a) Functional isomers
   b) Position isomers
   c) Metamers
   d) Chain isomers

6) Which of the following is pair of functional isomers
   a) $CH_3–CH_2–CHO$ & $CH_3–CH_2–CH_2–OH$
   b) $CH_3–CH_2–O–CH_2–CH_3$ and $CH_3–O–CH_2–CH_2–CH_3$
   c) $CH_3–COOH$ & $H–COOCH_3$
   d) $CH_3–\overset{O}{\overset{\|}{C}}–CH_2–CH_3$ & $CH_3–CH_2–\overset{O}{\overset{\|}{C}}–CH_2–CH_3$

7) 1-propanol and 2-propanol are ....
   a) Functional isomers
   b) Position isomers
   c) Chain isomers
   d) Metamers

8) o-dichlorobenzene and m-dichlorobenzene are ....
   a) Position isomers
   b) Functional isomers
   c) Chain isomers
   d) Enantiomers

9) Chain isomer of n-pentane is/are.
   a) 2-methyl butane
   b) 2, 2 dimethyl propane
   c) both a & b
   d) Isobutane

10) Alkene shows geometrical isomerism due to ...
   a) Asymmetry
   b) Rotation around (C–C) single bond

c) Resonance

d) Restricted rotation around (C=C) double bond

11) Which of the following compound shows geometrical isomerism?

a) 1-pentene
b) 2-pentene
c) 2-methyl-2-pentene
d) 2-methyl-2-butene

12) Cis-trans isomers are also known as ....

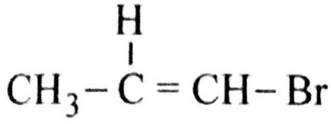
a) Optical isomers
b) Geometrical isomers
c) Structural isomers
d) Position isomers

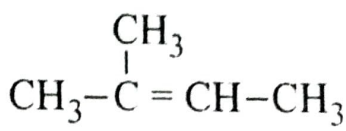
13) Which of the following compound shows cis-trans isomerism?

a) $(CH_3)_3N$
b) $(CH_3)_2NH$
c) $CH_3–CH=CH_2$
d) $CH_3 - CH = CH - CH_3$

14) Which of the following compound will not show geometrical isomerism?

a) Br–CH=CH–Br
b) Br–CH=CH–Cl

c) 

d) 

15) A molecule is said to be chiral ....

a) If it posseses plane of symmetry.
b) If it possesses centre of symmetry.
c) If it cannot be superimposed on it's mirror image
d) It can be superimposed on its mirror image.

16) Plane polarised light is affected by ....

a) Identical molecules
b) All polymers
c) Chiral molecules
d) All biomolecules

17) Enantiomers can be distinguished by ....

a) Chemical test
b) Mass spectroscopy
c) IR spectroscopy
d) Polarimetry

18) Optical isomers that are nonsuper imposable mirror images are known as ....

a) Tautomers
b) Enantiomers
c) Diastereomers
d) Metamers

19) Total number of optical isomers for a compound containing two dissimilar asymmetric carbon atom?

a) n^2
b) 2^n
c) $n + 1$
d) $n + 2$

20) Optical isomers that are mirror images are called as .... (O/N 2009)
a) Diastereomers
b) Enantiomers
c) Metamers
b) Meso compound

21) Meso-tartaric acid is .....
a) Sometimes optically active
b) Always optically active
c) Sometimes optically inactive
d) Always optically inactive

22) Which of the following is optically active compound?
a) Propanoic acid
b) 3-chloropropanoic acid
c) 3-chloropropene
d) 2-chloropropanoic acid

23) 2-butanol and 2-amino pentanes are optically active because they contains ...
a) An asymmetric carbon
b) A plane of symmetry
c) Hydroxyl & Amino group
d) Centre of symmetry

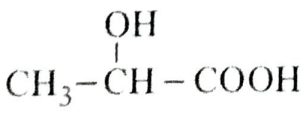
24) Which of the following is optically active compound?
a) n-butyl chloride
b) sec-butyl chloride
c) tert-butyl chloride
d) iso-butyl chloride

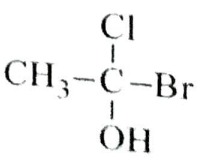
25) 2-hydroxy propanoic acid (lactic acid) shows ....
a) Geometrical isomerism
b) Tautomerism
c) Optical isomerism
d) Metamerism

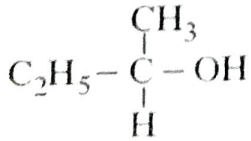
26) Conformational isomers are obtained due to ....
a) Restricted rotation of (C = C) double bond
b) Rotation of (C = C) double bond
c) Restricted rotation of (C – C) single bond
d) Rotation of (C – C) single bond

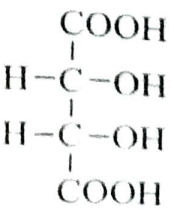
27) Conformational isomers are also called as ....
a) Geometrical isomers
b) Structural isomers
c) Rotomers
b) Enantiomers

28) Which of the following is optically inactive.

a) 

b) 

c) 

d) 

29) Meso-tartaric acid is optically inactive due to :
a) Axis of symmetry
b) Plane of symmetry
c) Centre of symmetry
d) None of these

30) The organic compound which rotate plane polarised light towards right hand side or clockwise direction is called....
a) Dextrorotatary
b) Leavorotatary
c) Resolution
d) Walden inversion

31) Equimolar mixture of D & L form is known as ...
a) Resolution
b) Racemic mixture
c) Enantiomers
d) Diastereomers

32) The substance which rotate plane poarised light in anticlockwise direction is known as ...
a) Dextrorotatary
b) Leavorotatary
c) Resolution
d) Racemic modification

33) The seperation of racemic mixture into two optically active components is known as .... (M/A 2009)
a) Resolution
b) Walden inversion
c) Racemic modification
d) Metamerism

34) Stereoisomers that are not mirror images of each other is called as...
a) Enantiomers
b) Geometrical isomers
c) Rotomers
d) Diastereomers

35) Which of the following compound doesn't have chiral carbon?
a) 2-butanol
b) 2-hydroxy propanoic acid
c) 1-butanol
d) 2-chlorobutane

36) Choose the false statement about enantiomers
a) They have same melting point
b) They have same density
c) They have same solubility
d) They rotate plane polarised light in same direction

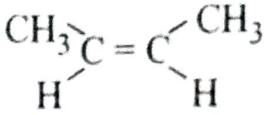
37) Choose the correct statement about diastereomers.
a) Two diastereomers will have different melting point
b) They have different boiling point
c) They have different solubility
d) All of these

38) Which of the following is least stable conformation?

a) Eclipsed
b) Gauche
c) Staggered
d) None of these

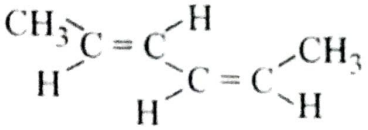
39) Meso-tartaric acid and racemic mixture are optically inactive due to .... & ..... respectively.

a) Enternal compensation & internal compensation.
b) Internal compensation & external compensation.
c) Both have internal compensation.
d) Both have external compensation.

40) IUPAC name of 

a) Z-2-butene
b) E-2-butene
c) Z-1-butene
d) E-1-butene

41) Choose correct configuration.

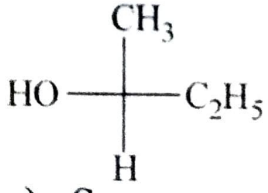


a) 2E, 4E
b) 2Z, 4Z
c) 2E, 4Z
d) 2Z, 4E

42) Letter D in D-glyceraldehyde indicates ...

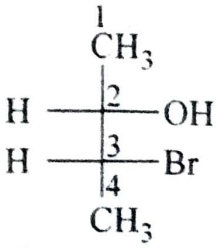
a) Dextrorotatary
b) Diastereomers
c) Position of –OH group present on chiral carbon
d) Position of primary –OH group.

43) Configuration of given compound is ...



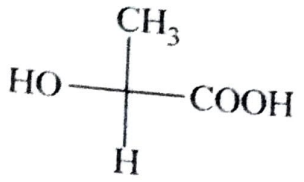
a) S
b) R
c) E
d) Z

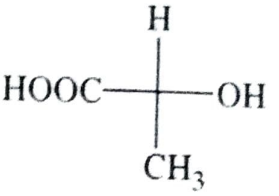
44) Indentify configuration at C–2 and C–3 carbon.

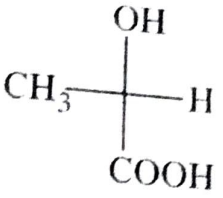


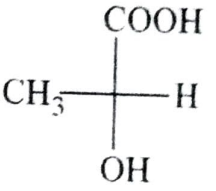
a) S, R
b) S, S
c) R, R
d) R, S

45) Which of the following have R-Configuration

a) 

b) 

c) 

d) 

46) How many optical isomers are possible for lactic acid? (M/A 2011)

a) 2 b) 4

c) 6 d) 8

47) Compounds with same molecular formula but different structural formula are called. (O/N 2011)

a) Alkoxide b) Isocompound

c) Isomers d) Orth-compounds

48) Ethanol and methoxy methane are .... (O/N 2011)

a) Functional isomers b) Stereoisomers

c) Enantiomers d) Diastereomers

49) Total number of stereoisomers possible in 2,3-dihydroxy pentane is...

a) 2 b) 3

c) 4 d) 5

50) Walden inversion is associated with ....

a) SN^1 reaction b) SN^2 reaction

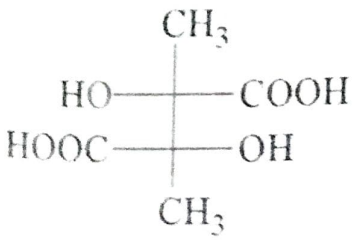
c) Elimination reaction d) Diels-Alder reaction

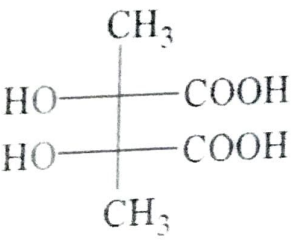
51) Which of the following tetrahedral molecules shows optical activity?

a) CH_4 b) CH_3Cl

c) $CH F_2Cl$ d) CHFClBr

52) The stereochemical relationship between the following structures are .....

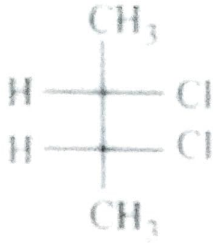




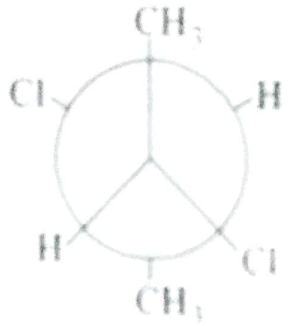
a) Enantiomers b) Homomers

c) Diastereomers d) None of these

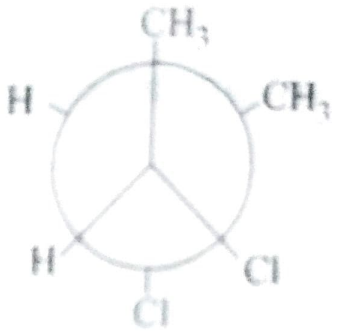
53) The most stable newman projection of the dichloro butane, whose fischer projection is given below.



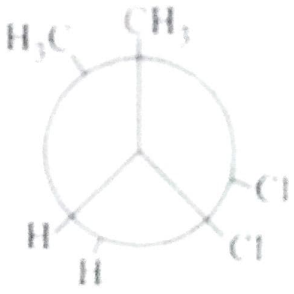
a)



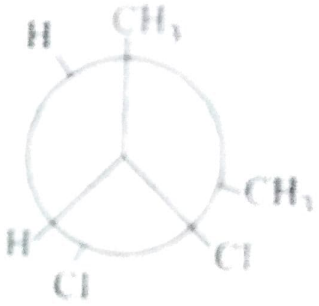
b)



c)



d)



54) The number of stereoisomers of 1, 3 dichloro-2-bromobutane is ...

a) 2
b) 3
c) 6
d) 4

Answer Key

1)	**b**	2)	**a**	3)	**a**	4)	**c**	5)	**a**	6)	**c**
7)	**b**	8)	**a**	9)	**c**	10)	**d**	11)	**b**	12)	**b**
13)	**d**	14)	**d**	15)	**c**	16)	**c**	17)	**d**	18)	**b**
19)	**b**	20)	**b**	21)	**d**	22)	**d**	23)	**a**	24)	**b**
25)	**c**	26)	**d**	27)	**c**	28)	**d**	29)	**b**	30)	**a**
31)	**b**	32)	**b**	33)	**a**	34)	**d**	35)	**c**	36)	**d**
37)	**d**	38)	**a**	39)	**b**	40)	**a**	41)	**d**	42)	**c**
43)	**a**	44)	**a**	45)	**d**	46)	**a**	47)	**c**	48)	**a**
49)	**c**	50)	**b**	51)	**d**	52)	**c**	53)	**a**	54)	**d**