

N.A



BRAINWARE UNIVERSITY

Term End Examination 2022

Programme – B.Sc.(BT)-Hons-2018/B.Sc.(BT)-Hons-2020/B.Sc.(BT)-Hons-2021

Course Name – General Chemistry

Course Code - BBT303/BBTC303

(Semester III)

Full Marks : 70

Time : 3:0 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

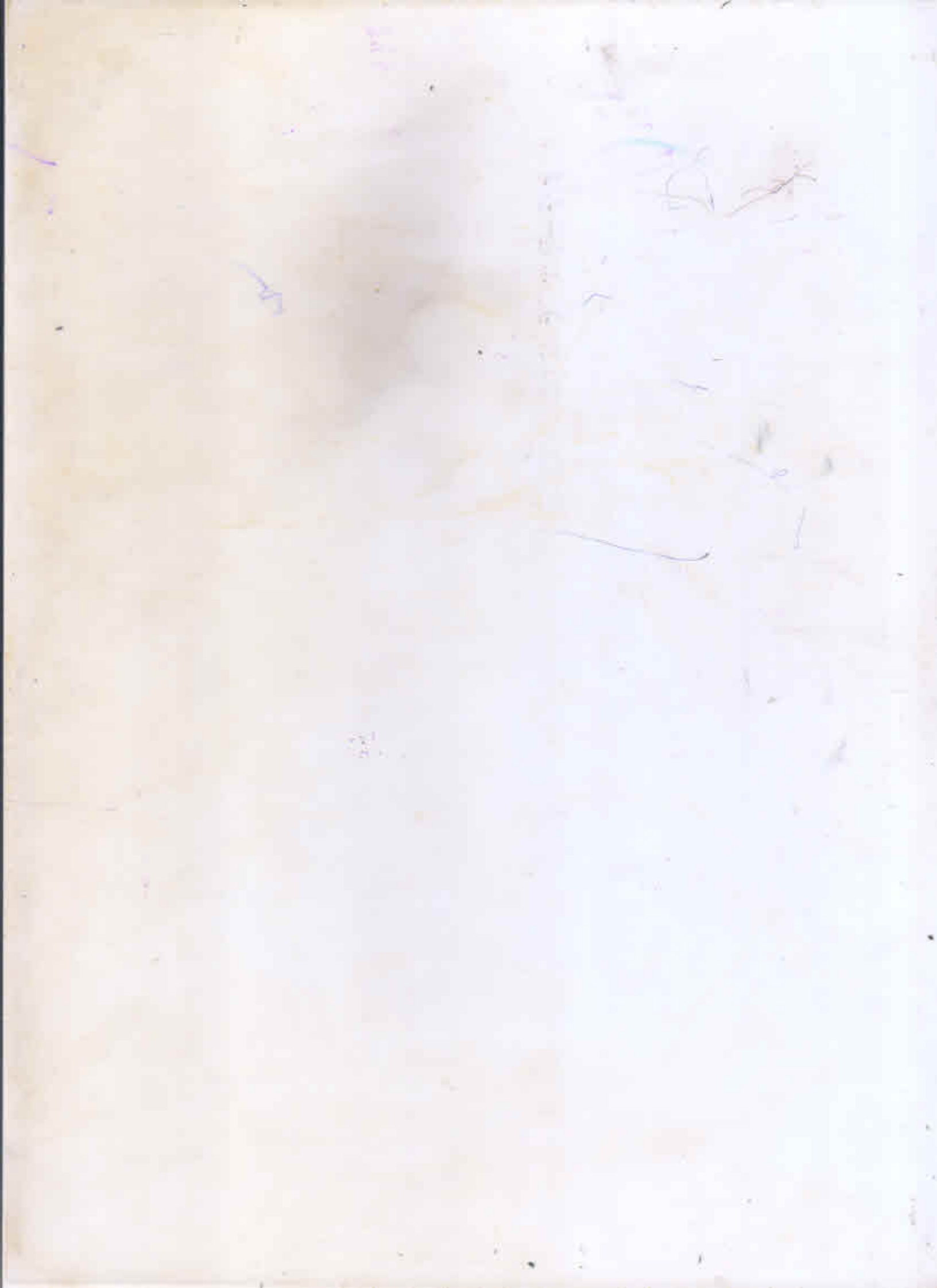
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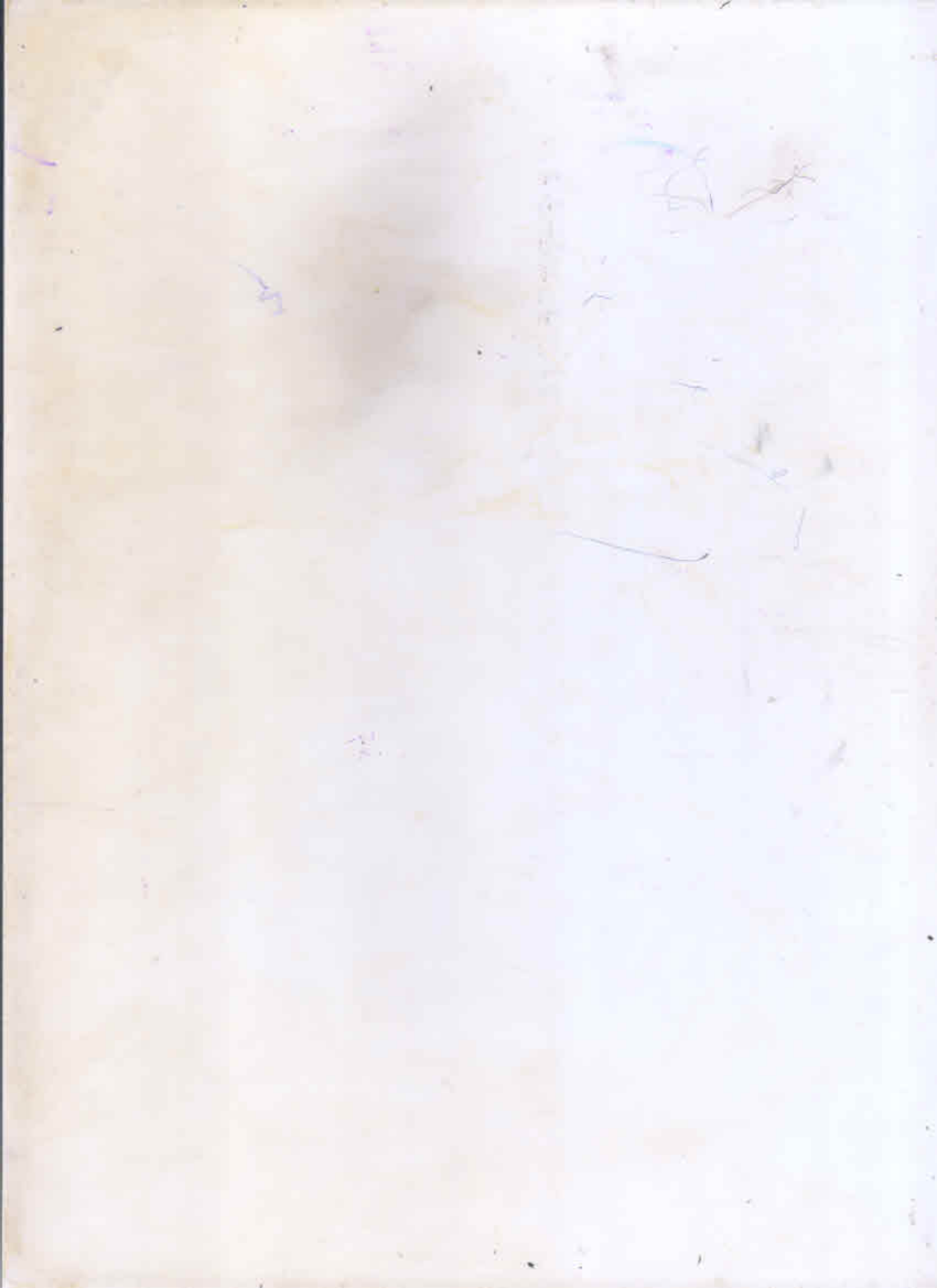
1. Choose the correct alternative from the following :

(i) Which of the following terms best describes the following pair of molecules?



- a) Isomers
b) Configurational isomers
c) Constitutional isomers
d) Geometrical isomers
- (ii) A molecule is called anti aromatic if it contains:
a) $(4n+2)\pi$ electrons
b) $2n\pi$ electrons
c) $(2n+2)\pi$ electrons
d) $4n\pi$ electrons
- (iii) The number of principles of green chemistry is
a) 2
b) 6
c) 10
d) 12
- (iv) Let there be four groups \dots COOH, D, H and CONH₂ attached to the chiral carbon, which one will have highest priority sequence
a) D
b) CONH₂
c) H
d) COOH
- (v) Which one of the following is a green solvent
a) Ethyl lactate
b) Benzene
c) Carbon tetrachloride
d) Toluene
- (vi) The shape of NH₃ molecule is
a) linear
b) pyramidal
c) bent
d) tetrahedral
- (vii) Bond order of Li₂ is
a) 1
b) 0.5
c) 1.5
d) 0
- (viii) What is the effect of the optical angle of rotation (α) if length of polarimeter tube is halved and the concentration of the molecule is doubled
a) α remains same
b) α gets halved
c) α gets four times
d) α eight times
- (ix) Optically active molecules which rotate plane-polarized light in a counterclockwise direction are said to be
a) levorotary
b) R configuration
c) dextrorotary
d) S configuration
- (x) Greater the number of resonating structures for a given intermediate,
a) less will be the stability
b) more will be the stability
c) it will not accept the stability
d) same will be the stability
- (xi) Which of the following is an application of mesomeric effect?
a) dipole moment
b) strength of acid and bases





What are green solvents? Give some examples. [3+2]

OR

(5)

13. What do you mean by atom economy? Ethane reacts with chlorine molecule to form ethyl chloride. Calculate the atom economy. [2+3]

(5)

What is super critical water and what is its application?

OR

(5)

14.



(5)

What type of a molecule is the structure given above? Explain.

OR

Calculate the lattice energy of NaCl crystal from the following data by using Born-Haber Cycle:
for Na (s), $\Delta H_{\text{sub}} = 108.7 \text{ kJ/mol}$, bond dissociation energy for $\text{Cl}_2 = 225.9 \text{ kJ/mol}$, 1st ionization energy for Na = 489.5 kJ/mol , 1st electron gain enthalpy for Cl = -351.4 kJ/mol , Enthalpy of formation (ΔH_f) = -414.2 kJ/mol

(5)