XI- CHEMISTRY MINIMUM MATERIAL

(Based on Public key answer)

UNIT-1

Define atomic mass unit(amu)
1/ 12 th mass of Carbon-12-
Atom in Ground state
1.6605×10^{-27}kg

Relative atomic mass
<u>Average mass of atom</u>
Unified atomic mass

Define mole
6.023×10^{23}
Elementary particle as-C-12
(proton,Neutron,Electron)

Gram equivalent mass
Mass of element
Combine or displace
1 g H or 8 g O, 35.5 g Cl

Define Oxidation number
Imaginary charge
O.number of oxygen is -2

Oxidation	**Reduction**
1.add oxygen	add Hydrogen
2.Remove the Hydrogen	2.Remove the oxygen
3.loss of e^-	3.Gain of e^-
4.O.number increases	4.O.number Decreases
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Molecular mass	**Molar mass**
Mass of the molecule / Unified atomic mass	Mass of One mole of substance
	Sum of the relative atomic mass
CO_2=44 u	CO_2 =44 g

Limiting &Excess reagent
One reactant completely consumed
It limit the further reaction
Another reagent excess is excess reagent

Caffine and fructose/Glucose

M.formula	**E.Formula**
$C_6H_{12}O_6$	CH_2O
$C_8H_{10}N_4O_2$	$C_4H_5N_2O$

Oxidation state calculation
CO_2 and SO_2
X+2(-2)=0, X+(-4)=0, ans=+4

Auto Redox reaction
Same compound undergo Oxidation and reduction .Ex- H_2O_2

Redox reaction
Oxidation +Reduction =Redox reaction (nv)

UNIT-2

Rutherford observation
α-particle-passed through the coil
Some deflected-small angle
Some reflected-180^0

Bohr atom model observation
Electron-energy-Quantised
e- revolve Circular bath-orbit
electron mvr=nh/2л
e^- higher energy –lower energy
excess energy emitted as light

Limitation of Bohr atom model
One electron species not multi electron species
Not explain Zeeman & stark effect
Not explain mvr=nh/2л
Zeeman -Splitting of spectral line
In magnetic and Electric **(stark)**

P.Q.number	**Azi.Q.number**
Energy	Shape
Denote by n	Denote by l
n=1,2,3,4	L= 0,1,2,3,4
K,L M,N	S, p, d,f,g
No of electron	No of electron
$2n^2$	2(2l+1)
(Pub-2023)	

De-broglie equation
E=hY , E=mC^2 , λ= h\mc , λ = h\mv

What is n+l rule
Orbital n+l value low –low energy
Orbital n+l value Hig –High energy
Two orbital same n+l value
Which orbital low n value it low energy.

What is Aufbau Principle
e^- are filled in orbital – increasing order of energy
low energy orbital first filled
then higher energy orbital filled.

What is Pauli exclusion Principle
No 2 electron in an atom have same set four Q.number

What is Hund's rule
Degenerate orbitals pairing does not takes place.
Until all available orbital contain one e^-.

Copper ,Chromium Electronic configuration
Actual electronic configuration
Cr-24-[Ar] $4S^1\,3d^5$
Cu-29-[Ar] $4S^1\,3d^{10}$
Expected electronic configuration
Cr-24-[Ar] $4S^2 3d^4$
Cu-29-[Ar] $4S^2 3d^9$

Define Exchange Energy
2 or more e^- same spin in degenerate orbital Exchange their position energy is released.

Davision and Germer Experiment
Beam of electron –On Ni crystal-get Diffraction pattern- this is -similar to X-ray pattern
x-ray wave nature so electron also wave nature. (Nv)

Heisenberg's Uncertainity Principle (unit-2)
$\Delta X.\Delta P \geq h/4л$
Impossible determine both position and momentum-microscopic particle. (Nv)

UNIT-3

Define Triads
Atomic weight – middle element
Arithmetic mean of two element

Modern periodic law
Physical and chemical properties-
Periodic function –atomic number

Define periodicity
Repeat the Physical and chemical properties-Regular interval

Effective nuclear charge
net nuclear charge by the valance electron
Z_{eff}=Z-S

Why N& Be high ionisation energy
N,Be-half filled e^- configuration

Why Noble gas high ionisation energy- Stable Electronic configuration $ns^2\,np^6$ **(nv)**

Define iso electronic species
Different element-Same electron
Define Ionization Energy
Isolated gaseous atom +energy -Cation+ e^-
Define Electron affinity
Isolated gaseous atom +electron- anion +energy
Define Valency
Number of valence electron e in outer shell
8-valance electron= Valency
What is Diagonal relationship
Diagonal placed elements –similar properties Be-Al , B-Si
Define Electro negativity
Atom attract the shared pair of electron towards itself
E.Confuguration of Lant @ Acti
Lanthanoid ;- $4f^{1-14}$, $5d^{0-1}$ $6s^2$
Actinoid: $5f^{0-14}$, $6d^{0-2}$ $7s^2$
Why Halogen oxidising agent ?
Halogen have high E.affinity why?
Electronic configuration $ns^2 np^5$
Accept one electron - $ns^2 np^6$

UNIT-4

Define isotope
Atomic number same
Mass number different
$_1H^1$ $_1H^2$ $_1H^3$
Define Ortho and Para Hydrogen
Spin of 2 hydrogen nuclei-same
Spin of 2 hydrogen nuclei-differen

How Convert to Para to ortho
Heating above 800 ^0C
Electrical discharge
Using O_2 ,NO ,NO_2
Using Catalyst Pt\Fe
Water Gas or Syn gas
$C+H_2O \rightarrow CO+H_2$ (1000^0C)
Water Gas Shift reaction
$CO+H_2O \rightarrow CO_2+H_2$
Deutrium exchange reaction
$CH_4+2D_2 \rightarrow CD_4+2H_2$
$NH_3+3D_2 \rightarrow 2ND_3+3H_2$
Uses of Heavy water
Moderator, tracer, coolant.
Type of Covalent Hydrides
Electron rich-C_2H_6 , CH_4
Electron deficient B_2H_6
Electron precise-NH_3, CH_4
Hydrogen bonding
Hydrogen + electro negative atom
Joined by covalent bond
Type of Hydrogen bond
Inter molecular hydrogen bonding (H-bond in between molecule)
Intra molecular hydrogen bonding (H-bond with in the molecule) nv

H_2O	H_2O_2
Bent shape	Open book like shape
Polar	Non polar
$104^0.5'$	94.8^0

Uses of Hydrogen-
Rocket fuel, Solvent,Fuel cell, Reducing agent

Position of Hydrogen P.table
E.Configuration $1S^1$,Unipositive, Reducing agent, Ionisation energy
H> Alkalimetal Electron affinity
H<X
+1 Oxidation state, Form halide,Sulphide
Preparation of Tritium
$_3^6Li + _0^1n \to _2^4He + _1^3Ti$
Haber process(NH_3Prepration)
$N_2+3H_2 \rightarrow 2NH_3$(200atm /Fe)
Soft and Hard water
Water contain soluble salt
Mg,Ca,Mn (SO_4,Cl,CO_3)
Water free from soluble salt.
Clark's method
$Mg(HCO_3)+2Ca(OH)_2 \rightarrow$
$2CaCO_3 +$ $Mg(OH)_2+2H_2O$
Explain about Hydride
H+metal and non metal
Ionic Hydride
Hydrogen +alkali metal or alkaline earth metal
Transfer of e from metal to H
Prepare at 400^0C. White crystal
High-M.Point example LiH
Covalent Hyrdide
Hydrogen +Non metal
Sharing of electron between H and non metal .example NH_3 H_2O
Metallic hydride
Hydrogenation of metal
Light inexpensive
Thermally unstable
Example Ti,Zr

UNIT-5

Distinctive behavior Be,Li
Small size, High polarizing power,
High Hydration energy
Absence of d orbital
Why alkali metal colour?
Unpaired electron
Absorb energy
Low energy –high energy
High energy- low energy
Excess energy emitted as light
Gives washing soda(Solvey process
How will you Prepare Soda ash
$Na_2CO_3.10H_2O \rightarrow Na_2CO_3 +10H_2O$
Above 393 k
Preparation of plaster of Paris
$2CaSO_4.2H_2O \rightarrow 2CaSO_4.H_2O+3H_2O$
Temperature 393K
Uses of P.Paris
Dental problem, Bulding construction ,ornamental, Statues, bone fracture.
How prepare Dead burnt Plaster
Above 393 k plaster Paris loss all the water molecule
Anhydrous $CaSO_4$
Washing soda preparation
$NH_3+H_2O+CO_2 \rightarrow$ Amm.carbonate
Amm.carbonate +water +$CO_2 \rightarrow$
Amm. Bi-carbonate +NaCl$\rightarrow$
Sodium carbonate +Amm.Chloride

Why alkali metal less ionisation energy
Loss one electron become stable.
Biological importance of Ca & Mg
Adult human-25g Mg.1200 g Ca
DNA-synthesis
Stability and proper function of DNA- Balance the electrolyte
.used in Biochemical reaction
Ca present Bones and teeth.
Mg-present –Chlorophyll used in Photosynthesis
Deficiency of Ca-Blood clot time longer
Mg deficiency-Convulsion
Hydrogen occupies interstitial site
Non stichiometry **(nv)**

Lithium	Magnesium
Harder	Harder
With water form Oxides, Hydroxides	With water form Oxides, Hydroxides
Does not form super oxide	Does not form super oxide
Not form Bicarbonate	Not form Bicarbonate

UNIT-6 Gaseous law (NV)
Define Pressure
Pressure= Force/Area
SI unit is Pascal.

Avogadro's law	V α n	nv
Boyle's law	V α 1/P	
Charles law	V α T	tv
Ideal gas equation	PV= nRT	
Gay lussac's	P α T	
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Diffusion	**Effusion**	
One gas moved another gas	Gas escaped from small hole . Ex-	
Ex –Perfume	Foot ball	

Dalton law of partial pressure
$P_{total}= P_1 +P_2+P_3$---- etc
Total P= sum of partial Pressure
Graham's Law of Diffusion
Diffusion rate α $1/\sqrt{m}$
Rate of Diffusion inversely Propotional to square root of molar mass
Liquification method
Linde's method
Claude's method
Adiabatic method
Vanderwalls constant
$(P+an^2/V^2)(V-nb)= nRT$
$V_c=3b$, $T_c= 8a/27Rb$
$P_c=a/27Rb$
Define Boyles temperature
Real gases obeys the ideal gas law at particular temperature
Pressure @Volume correction
$P= P+an^2/V^2$,$V=V-nb$

Define Compressibility factor
Z=PV/nRT
Z=1ideal . Z>1 , Z<1 real gas
Joule Thomson effect
Tem of gas is decreases
Gas Adiabatically Expand from High pressure to Low pressure
Inversion temperature
Below this temperature gas obeys the Joule Thomson effect T_i = 2a/Rb
Define Critical temperature T_c
The above T the gas can't be liquefied even high P
Define Critical Pressure P_c
minimum pressure required to liquefy one mole of gas at T_c
Define Critical volume Vc.
The Volume occupied by one mole of gas at T_c and P_c

UNIT-7
Define system and surrounding
Part of the universe
All the universe except system
Zeroth Law of thermodynamics
If the two system are thermal equilibrium with the third system They are thermal equilibrium with themselves
Define Entropy
measure of disorder
II law of thermodynamics
Entropy- isolated system increases spontaneous process
Define Entropy
measure of disorder
II law of thermodynamics
Entropy- isolated system increases-spontaneous process
Classius statement
Impossible heat transfer cold body to hot body without doing work
Characteristics of internal energy
Extensive Property
State function
Internal energy change $\Delta U=U_f-U_i$
Internal energy is negative.
$\Delta U=U_f-U_i$ = -ve $U_f<U_i$
Internal energy is positive.
$\Delta U=U_f-U_i$ = +Ve $U_f>U_i$
Efficiency $=\{1-T_c/T_h\}$ x100
Kelvin statement
Impossible to construct engine absorb heat from the hot source Heat-Work-cyclic process Without transfer heat to cold sink
Entropy state ment
Entropy of Isolated System increases during The Spontaneous Process
Efficency Percentage
$(1-T_c/T_h)$ X 100
Third law of thermodynamics
Entropy of pure crystalline substance is zero at Absolute zero
S=0 ,T=0

N.VELLAICHAMY M.SC B.Ed

Extensive Properties	Intensive Properties
System properties depend on size or mass. Ex ,volume	System properties depend on size or mass. Ex B.p
State function	**Path function**
Properties of system depends on state Ex -P,V,T	Properties of system depends on path Ex- Work ,heat

First law of thermodynamics
Total energy of isolated system- constant
One form of energy to another form of energy.
Define Lattice energy
Energy –Completely remove the constitutents ions from the crystal lattice to infinite distance,
$NaCl \to Na^+ + Cl^-$ **(nv)**
Application of bomb calorimeter
Study metabolic study
Determine calorific value of food
Calculate amount of heat in combustion reaction
Condition of spontaneous
$\Delta H = -Ve$,$\Delta G = -Ve$, $\Delta S = +Ve$
Define Hess's law
$\Delta H_f = \Delta H_1 + \Delta H_2 + \Delta H_3$
ΔH for reaction at constant P or V same single or multiple step **(nv)**

Calorific Value of Food And unit
Heat produced- one gram substance Completely Burnt
SI unit is J Kg^-
Define Enthalpy of Combustion
Change in Enthalpy one mole of substance –burnt–using air
Methane -87.78 KJ mol^-
Define Molar Heat Capacity
The amount of Heat absorbed by one mole substance to raise temperature 1 Kelvin
What is Enthalpy Of Neutralisation
Enthalpy Change neutralisation
One gram equivalent acid +
One gram equivalent base –dil solution.
Derive Relation between H and U
$H=U+PV$
$H_1 = U_1 + PV_1$. $H_2 = U_2 + PV_2$
$\Delta H = \Delta U + P\Delta V$
First law $\Delta U = q + W$
$\Delta H = q = w + P\Delta V$
$q = -P\Delta V$
$\Delta H = -P\Delta V + P\Delta V$
$\Delta H = q$
Sign Convention of work and Heat
Worke done by the system **-W**
Work done on the system **+W**
Heat is liberated by system **-q**
Heat is absorbed by the system **+q**
Isothermal -dT=O **Isobaric -** dP=O
Adiabatic -dq=O **isochoric-** dv=O

VOLUME-II
UNIT-8
Why chemical.Equ... called dyamamic equilibrium?
Forward and back ward same rate
No macroscopic change
Law of mass action
Relation between K_p and K_c
$K_c=[C]^l[D]^m/[A]^x[B]^y$
$K_p=P_C^l\ P_D^m/\ P_A^x\ P_B^y$
$K_p=K_c(RT)^{\Delta ng}$
Lechateliers Principle(Pub-2023)
If the a system at equilibrium is disturbed
Then, the system shift itself in direction
That nullifies the effect of that Distrubance
Effect of pressure-Few moles
Effect of inert gas-No effect [Nv]
Effect of catalyst-No effect
Vant-Hoff Equation
ΔG=-RT lnK
$D\ lnK/dt = \Delta H^0/RT^2$
$Log\ K_2/K_1 = \Delta H^0/2.303R[T_2-T_1/T_1\ T_2]$

Homogeneous	Heterogeneous
Reactants and products are differ phase	Reactants and products are same Phase
$H_{2\ g} + I_{2\ g} \to 2HI_g$	$H_2O_{\ liq} \to H_2O_{\ gas}$

Effect of pressure-Few moles
Effect of inert gas-No effect [Nv]
Effect of catalyst-No effect

Reaction Quoient
$K_c=[C]^l[D]^m/[A]^x[B]^y$
Derive the K_p and K_c for HI
$H_2+I_2 \to 2HI$
$K_c=4x^2/(a-x)(b-x)$
$K_p=4x^2/(a-x)(b-x)$
Dervie the K_p and K_c for NH_3
$N_2+3H_2 \to 2NH_3$
$K_c=4x^2\ V^2/(a-x)(b-3x)^3$
$K_p=4x^2\ (a+b-2x)^2/\ P^2(a-x)(b-3x)^3$
Derive the K_p and K_c for PCl_5
$PCl_5 \to PCl_3 + Cl_2$
$K_c=x^2/(a-x)V$
$K_p=x^2\ P/(a-x)(a+x)$.
Define Δng
Δng=No.of moles of product-No.of moles Recatants
Write K_p and K_c for this equation
$CaCO_{3\ (s)} — CaO_{(s)} + CO_{2(g)}$
$K_c=[Co_2]$ $K_p=P_{\ Co2}$
Write the equation for
$K_c=[NH_3]^4[O_2]^5/[NO]^4[H_2O]^6$
$4NO+6H_2O \rightarrow 4NH_3+5O_2$
Application of Equ.constant
Find Direction of reaction
Find Extent of reaction
Calculate Eq.Con of Reactant & products
Vant-Hoff Equation
ΔG=-RT lnK
$D\ lnK/dt = \Delta H^0/RT^2$
$Log\ K_2/K_1 = \Delta H^0/2.303R[T_2-T_1/T_1\ T_2]$
Law of mass action **(nv)**

UNIT-9

Molality=

No .of moles of solute
Mass of the solvent(kg)

Molalrity=

No .of moles of solute
Volume of the solution(L)

Normality=

No .of grm.Equi of solute
Volume of the solution(L)

Define ppm

Number of parts of componentsx1
Total number of parts of all components

Mass of the solute X 10^6
Massof the Solution

Advantage of Std.Solution

Minimise the error due to weighing

Prepare the different con. of solution , More stable.

Define Isotonic solution

Two solution have same osmotic pressure

Significance of Osmotic pressure

Magnitude is large

Molecular mass of bio molecule is calculated (nv)

Relative lowering V. Pressure = W_B x M_A / W_A x M_B=$\Delta P/P^0_A$
Elivation of Boiling point M_2 = K_b xW_2 x1000/ ΔT_b xW_1
Depression of Freezing point
Depression of Freezing point M_2 =K_f xW_2 x1000/ ΔT_f xW_1
Osmotic Pressure =M_2=W_2 xRT/V

Define Hemolysis

Solvent-Cell outside to cell normalize the osmotic pressure.

What is Henry's law

Partial pressure of gas α solute mole fraction of solute

P_{Solute} X_{solute}

Limitation of Henry's law

Only at Moderate T & P

Less soluble Gases (Only)

Gas do not react with solvent

Gas do not Associate or Dissociate

Define Raoult's law

Incase of solution of volatile Liquid

Partial pressure component A,B α Mole fraction of A,B

Ideal	Non ideal
ΔVmixing=0	ΔVmixing=0
ΔHmixing=0	ΔHmixing=0
Escaping tendency	Escaping tendency
Solute=Solvent	Solute>Solvent

Define Osmossis

Solvent-Lower to Higher Concentration

-Semi permeable memberane

Reverse Osmossis

Solvent-Higher to Lower Concentration

-Semi permeable membreane

Osmotic pressure

Pressure used to stop the Osmosis

Stop the moment of solvent [Nv]

Define colligate properties

Properties depend on the number of solute particle **Ex-** osmotic press

Osmotic pressure

Pressure used to stop the Osmosis

Stop the moment of solvent [Nv]

UNIT-10

What is Octet rule

The atom transfer or share electrons , obtain 8 electrons In outer most shell

Covalent bond

Mutual Sharing of one or more Pair of electron between two atom

Lewis Dot structure.

H_2O, H_2SO_4,NH_3, SO_3,CO_2

Define Bond length

Distance between the two atom covalently bonded

Define Bond angle

Covalent bond directional nature

Oriented specific direction

Direction nature create the angle

Electronegativity difference A,B

=1.7->50% Ionic 50% Covalent

>1.7->more 50% Ionic character

<1.7->less 50% Ionic Character

(Never lose your Confidence)

Define Bond Energy

Energy required to break one mole of bond. unit $KJmol^{-1}$

Define Bond order

The number of bond between two bonded atom

Bond order= N_b-N_a/2

Bond Which is Strong Why

2 atomic orbital overlab linearly

2 atomic orbital overlab Side wise

Bond is strong because overlab is maximum

Explain Fajan's Rule

High charge of anion & cation-High covalent

Small size cation

Large size anion

Cucl > NaCl- Covalent

Define Ionic Bond

Complete transfer of electron form anion and cation.force btw these ions is called ionic bond

Molecuar orbital (MO)-Theory

atomic orbital combine give Molcular orbial

Shape of M.orbital depend on Atomic orbital

Two type of Molecular orbital

Bonding M.orbital

Bonding M.orbital

Antibonding M.orbital

It following Aufbau's principle,pauli exclusion,Hunds rule.

Bond order= N_b-N_a/2

Explain VSEPR Theory

Shape of molecule is depend on the number of valence electron

Two type valence e^-

Bond pair-involved in bonding

Lone pair-Not involved in bonding

Two pairs repeal each other

L.P-L.P>L.P-B.P>B.P-B.P

Define Dipole moment

Polarity of Covalent bond

m= q X 2d

d-distance, q-charge m-dipole

Define Hybridization

Mixing of two atomic orbital – form-new orbital.

Explain about The VB Theory

Half filled tow orbital –form covalent bond

The resultant overlabing orbital contain two electron with opposite spin

Strength of covalent bond depend on extent of Hybridisation

High overlap high energy relased

Each orbital has specific direction

Dipole moment of CO_2 is zero Why?

In CO_2 two polar bonds are equal in magnitude but in opposite direction

''Education is the most power full weapon we can used to change the word''

UNIT-11

Characteristics of organic compound

Covalent nature

Mostly inflammable except CCl_4

Insoluble in water

Functional group- atom or specific combination of bonded atom

React in characteristic way

Irrespective of the organic molecule

Homologeous series

Series of organic compound

Same formula But differ by CH_2 –

General formula of

Alkane C_nH_{2n}+2

Alkene C_nH_{2n}

Alkyne C_nH_{2n}-2

Define Optical isomerism

Same Physical and chemical properties

Different in rotation of plane of Polarized light- **ex-Glucose**

Define Levo and dextro rotator.

Comound can rotate the plane of polarized light towards Left-Levo rotate the plane of polarized light towards right-**dextro**

Condition for optical isomerism

Chiral, non-superimosible ,Assymetric

Define Isomerism- Same Molecular Differ structure different properties called isomers phenomenon called isomerism

Chain	Position
Same m.formula different in chain or Skeleton	Same m.formula different in position or functional grp

Define Metamerism

Distribution of C-on either side functional group

Cis	Trans
Same group Same side of c=c bond More steric repulsion	Same group Same side of c=c bond More steric repulsion
CH 3 CH_3 C=C H H	H CH_3 C=C CH_3 H

Lassaigne's or Sodium fusion extract

Na+organic compound-Fusion tube-heat-China dish-10 minutes crush and filter

Define Chromatography

Separation of mixture by Differential movement of individual components-

Porous medium

Influence of solvent

R_f=Distance moved by **substance**

From the base line

Distance moved by **solvent**

From the base line

Feature of Mechanical model of atom

Electron energy-Quantised

Solution of Schordinger wave equation gives allowed energy level-(orbits)

Allowed energy level give wave function

wave function –Explain Wave nature of electron

The wave function no Physical meaning

Orbital-three dimensional face

Praobability of finding e^- maximum

Slater rule for Sc-21(E.n.Charge)

$1s^2$ =n-3 , $2s^2$ $2P^6$ =n-2

$3s^2 3P^2$ $3d^1$=n-1 , $4s^2$=n

Z_{eff}=Z-S 21-8=3.

Ionic radii of Na F

d = r_c + r_A

r_c α $1/(Z_{eff})C^+$

r_A α $1/(Z_{eff})A^-$

r_c = $(Z_{eff})A^-$

r_c = $(Z_{eff})C^+$

231 pm = r_{Na} + r_{Cl}

$(Z_{eff})Na^+$ =6.85

$(Z_{eff})F^-$ =4.85

r Na^+ =95.9

r F^- =135.1

PREPARED BY N.VELLAICHAMY M.SC,B.Ed. CHEMISTRY

UNIT-12-13

SN^1	SN^2
Unimolecular	Bimolecular
First order	2^{nd} order
Optically Inactive	Optically Active
Rate=k [Alkyl halide]	Rate=k [Alkyl halide] [nucleophile]

ElectroPhile	Nucleophile
Electron Defficient	Electron rich
+ve charge or neutral	-ve charge or
Moves towards Nucleophile	Moves towards electrophile
Lewis acid	Lewis base
Ex-Carbon	Ex-H_2O

Inductive effect(Pub-2023)
Chang in polarization of Covalent bond due to atom or group
Ex;-methyl chloride

Homolytic Cleavage	Hetreolytic cleavage
Break symmetrically	Break unsymmetrically
Electro negativity same	Electro negativity different
Formation of free radical	Formation of carbo cation anion. (NV)

Naming Reactions

UNIT-15

What is Green chemistry
Environmental favourable chemical Synthesis
Reduce the uses and generation of hazardous substance

Define Global warming and Green house effect
Earth is heated by CO_2 and CFC by absorb the IR radiation
Heating earth by green house gases is called Global warming

What is Acid rain
The PH 5.6
$2SO_2+O_2+ 2H_2O\text{->}2H_2SO_4$
$2NO_2+O_2+2H_2O\text{->}2HNO_3$

Which is protective umbrella why
Ozone it prevent the UV radiation

What happens if green house gases missing from atmosphere ?
Temperature of earth would be -18^0

What is Bio-Degradable and non bio degradable pollutants
Substance easily decomposed by natural-Cow dung
Substance easily decomposed by natural-Plastics

What are Particulate and type
Small solid or liquid droplet suspended in air
1.Viable-Bacteria
2.non-viable-dust,smoke

What is Eutrophication
Water bodies receive Excess nutrients – excess plant growth-**Algae bloom**. It reduces the dissolved oxygen in water – loss of Biodiversity-Eutophication.

difference between BOD and COD

BOD	COD
Biochemical oxygen demand	Chemical oxygen demand
Expressed in PPm	Expressed in Mg/Lit
Decompose the waste by microorganism	Decompose the waste by $K_2Cr_2O_7$
5 days 20^0C	2 Hours

SN^1 and SN^2 Mechanism

Here the key word only given by using this make the sentence - NV

nvchamychemist@gmail.com

(Always Proud to be INDIAN)