Padasalai's Telegram Groups!

(தலைப்பிற்கு கீழே உள்ள லிங்கை கிளிக் செய்து குழுவில் இணையவும்!)

- Padasalai's NEWS - Group
https://t.me/joinchat/NIfCqVRBNj9hhV4wu6_NqA

- Padasalai's Channel - Group
https://t.me/padasalaichannel

- Lesson Plan - Group
https://t.me/joinchat/NIfCqVWwo5iL-21gpzrXLw

- 12th Standard - Group
https://t.me/Padasalai_12th

- 11th Standard - Group
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- 10th Standard - Group
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- 9th Standard - Group
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- 6th to 8th Standard - Group
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- 1st to 5th Standard - Group
https://t.me/Padasalai_1to5

- TET - Group
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- PGTRB - Group
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- TNPSC - Group
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XII CHEMISTRY DIFFERENCES

1.

SNo.	Minerals	Ores
1.	Naturally occurring substances obtained by mining which contain the metals in free state or in the form of compounds like oxides, sulphides, etc. are called minerals.	Minerals that contain high percentage of metal from which it can be extracted conveniently and economically are called ores.
2.	All the minerals are not ores	All the ores are minerals
3.	Mineral of Al is Bauxite ($Al_2O_3\,nH_2O$) and China clay ($Al_2O_3\,SiO_2\,.2H_2O$)	Ore of Al is Bauxite ($Al_2O_3\,nH_2O$)

2.

S.NO	ROASTING	CALCINATION
1	Ore is strongly heated in the presence of air.	Ore is strongly heated in the absence of air.
2	Conversion of sulphide ores into their	During calcination of carbonate ore is decomposed to metal oxide

3.

S.No.	Lanthanoids	Actinoids
1	Orbital Differentiating electrons enters in 4f orbital	Orbital Differentiating electrons enters in 5f orbital.
2	Higher Binding energy of 4f orbitals are higher.	Lower Binding energy of 5f orbitals are lower.
3	They show less tendency to form complexes	They show greater tendency to form complexes.
4	Most of the lanthanoids are colourless.	Most of the actinoids are coloured. Eg. U^{3+} (Red), U^{4+}(Green),$UO2^{2+}$ (Yellow)
5	They do not form oxo cations	They do not form oxo cations such $U0_2^{2+}$,NpO_2^{2+}

4.

S.NO	Doublesalt	Coordination compound
1	Double salts lose their identity in aqueous solution by completely dissociating in to ions in the solvent	They don't lose their identity in aqueous solution as they do not ionize completely (the complex ion further doesnot get ionized)
2	They give test for all the constituent ions Example : $K_2SO_4.Al_2(SO_4)_3.24H_2O$	Example : $K_4[Fe(CN)_6]$

5.

S.NO	NAME OF THE UNIT CELL	EDGE LENGTH	ANGLES
1	Cubic	a=b=c	$\alpha=\beta=\gamma=90^o$
2	Rhombohedral	a=b=c	$\alpha=\beta=\gamma\neq90^o$
3	Hexagonal	a=b≠c	$\alpha=\beta=90^o$, $\gamma=120^o$
4	Tetragonal	a=b≠c	$\alpha=\beta=\gamma=90^o$
5	Orthorhombic	a≠b≠c	$\alpha=\beta=\gamma=90^o$
6	Monoclinic	a≠b≠c	$\alpha=\gamma=90^o$, $\beta\neq90^o$
7	Triclinic	a≠b≠c	$\alpha\neq\beta\neq\gamma\neq90^o$

6.

S.NO	CRYSTALLINE SOLIDS	AMORPHOUS SOLIDS
1	Long range orderly arrangement of constituents	Short range random arrangement of constituents
2	Definite shape	Irregular shape
3	Anisotropic in nature	Isotropic in nature
4	They are true solids	They are pseudo solids (or) super cooled liquids
5	Definite Heat of fusion	Heat of fusion is not definite
6	They have sharp melting points	They do not have sharp melting points

7.

S.NO	HEXAGONAL CLOSE PACKING	CUBIC CLOSE PACKING
1	"ABA' arrangement is known as the hexagonal close packed (hcp)arrangement	"ABC'' arrangement is known as the cubic close packed (ccp) arrangement.
2	The arrangement of spheres in the third layer exactly resembles the first layer.	The arrangement of spheres inthe third layer dose not resembles with those of either the first or second layer.
3	The hexagonal close packing is based hexagonal unit cells with sides of equal length.	The cubic close packing is based on the face centered cubic unit cell.
4	Tetrahedral voids of the second layer are exactly covered by the sphere of the third layer.	Octahedral voids of the second layer are partially covered by the sphere of the third layer.

8.

S.NO	TETRAHEDRAL VOIDS	OCTAHEDRAL VOIDS
1	When a sphere of second layer (b) is above the void in the first layer (a), tetrahedral void is formed	When a sphere of second layer (b) partially covers the void in the first layer (a), octahedral void is formed
2	If the number of close packed spheres be 'n' then, the number of tetrahedral voids generated is equal to 2n.	If the number of close packed spheres be 'n' then, the number of octahedral
3	This constitutes four spheres, three in the lower layer (a) and one in the upper layer (b).	This constitutes six spheres, three in the lower layer (a) and three in the upper layer (b)
4	When the centers of these four spheres are joined, a tetrahedron is formed.	When the centers of these six spheres are joined, an octahedron is formed.

9.

S.NO	ORDER	MOLECULARITY
1	It is the sum of the powers of concentration terms involved in the experimentally determined rate law.	It is the total number of reactant species that are involved in an elementary step.
2	It can be zero (or) fractional (or) integer	It is always a whole number, cannot be zero or a fractional number
3	It is assigned for a overall reaction	It is assigned for each elementary step of mechanism.

10.

S.NO	RATE OF REACTION	RATE CONSTANT OF REACTION
1	It represents the speed at which the reactants are converted into products at any instant.	It is a proportionality constant
2	It is measured as decrease in the concentration of the reactants or increase in the concentration of products.	It is equal to the rate of reaction, when the concentration of each of the reactants in unity
3	It depends on the initial concentration of reactants.	It does not depend on the initial concentration of reactants.

11.

S.NO	Lewis acids	Lewis bases
1	Electron deficient molecules Ex: BF_3 , $AlCl_3$	Molecules with one (or) more lone pairs of electrons. Ex:NH_3 ,H_2 O, R-O-H
2	All metal ions (or) atoms. Ex: Fe^{2+},Fe^{3+} , Cr^{3+}	All anions. Ex: F^-, Cl^-, CN^-
3	Molecules that contain a polar double bond. Ex: SO_2 ,CO_2	Molecules that contain carbon – carbon multiple bond. Ex: CH_2 =CH_2 ,CH ≡ CH
4	Molecules in which the central atom can expand its octet due to the availability of empty d – orbitals Ex: SiF_4, SF_4 ,$FeCl_3$ etc.	All metal oxides Ex: CaO,MgO,Na_2O etc...
5	Carbonium ion $(CH_3)_3C^+$	Carbanion CH_3^-

12.

S.NO	Chemical adsorption	Physical adsorption
1	It is very slow	It is instantaneous
2	It is very specific	It is non-specific
3	Monolayer of the adsorbate is formed.	Multilayer of the adsorbate is formed on the adsorbent
4	Fast with increase pressure, it can not alter the amount.	When pressure increases the extent of adsorption increases.
5	When temperature is raised chemisorption first increases and then decreases.	Physisorption decreases with increase in temperature.
6	Adsorption occurs at fixed sites called active centres.	It occurs on all sides.
7	Formation of activated complex	Activation energy is insignificant.
8	Transfer of electrons between the adsorbent and adsorbate.	No transfer of electrons
9	Heat of adsorption is high i.e., from 40-400kJ/mole.	Heat of adsorption is low in the order of 40kJ/mole.

13.

S.NO	Nitro form	Aci – form
1	Less acidic	More acidic and also called Pseudoacids
2	Dissolves in NaOH slowly	Dissolves in NaOH instantly
3	Decolourises FeCl3 solution	With FeCl3 gives reddish brown colour
4	Electrical conductivity is low	Electrical conductivity is high

14.

S.NO	DNA	RNA
1	It is mainly present in nucleus, mitochondria and chloroplast	It is mainly present in cytoplasm, nucleolus and ribosomes
2	It contains deoxyribose sugar	It contains ribose sugar
3	Base pair A = T. G ≡ C	Base pair A = T. G ≡ C
4	Double stranded molecules	Single stranded molecules
5	It's life time is high	It is Short lived
6	It is stable and not hydrolysed easily by alkalis	It is unstable and hydrolyzed easily by alkalis
7	It can replicate itself	t cannot replicate itself. It is formed from DNA

15. **Differences between Hormone & Vitamins**

	Hormones		Vitamins
1.	Hormones may be steroids, proteins, peptides or amino acid derivaties.	1.	They are never proteins but simple organic compounds such as amines, esters. alcohol, aldehyde or organic acids.
2.	They are effective in low concentration. Their excess or deficiency may cause hormonal disorders.	2.	They are needed in small quantity. Excess vitamins are excreted. Their deficiency causes malfunctioning called deficiency diseases or avitaminosis.
3.	They are secreted by the animal in its own body.	3.	They are rarely synthesized in the body. They are moslty taken with food.
4.	Hormones influence the genes to produce Specific enzymes required during metabolism.	4.	They act as co-enzymes and help emzymes to perform their function.
5.	They do not influence the working of those organs which have secreted them.	5.	They are not produced by body organs (except vitamin D)

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