*Dear students these are sample notes for NEET but notes for* ***9 -12/IIT, NEET*** *of all subject are also available, if anyone wants these note, send whatsapp message* ***+918004178753***

* Wurtz and Frankland reactions are free radical reaction.
* In Wurtz reaction small amount of alkene also produced.
* Note: Tertiary alkyl halide cannot convert into alkane by Wurtz or Frankland reaction; in this case it converts into alkene.
* Note: If different alkyl halide use in Wurtz reaction then mixture of alkane is form.
* Note: If moist ether is used instead of dry ether then alcohol is form instead of alkane.
* Note: If α-ωdihalide react with Zn form cyclo alkane this reaction is called Internal Wurtz reaction or Freund’s reaction.
* BrCH2CH2CH2Br + Zn $→$ Cyclo propane
* RCOONa + NaOH $→$ RH + Na2CO3 (Decarboxylation reaction).
* CaO is use along with NaOH because NaOH is hygroscopic.
* 2RCOOK $→$ R-R + CO2 + H2 + KOH (Kolbe electrolysis method).
* In Kolbe electrolysis method alkane and CO2 collected at anode.
* In Kolbe electrolysis method KOH and H2 collected at cathode.
* In Kolbe electrolysis method KOH is form so pH of solution increases.
* Carbonyl compound like RCOOH, RCOOR, RCHO, RCOR etc. reduce with Na/C2H5OH, give alcohol this reaction is called Bauven Blanc reduction.
* RCOOH/RCOOR/RCHO/RCOR + H2 $→$ ROH
* Reduction carbonyl compound by NaBH4 form alcohol.
* Note: NaBH4 reduce only carbonyl group.
* Aliphatic P° amine + HNO2 $→$ R–OH (P° Alc)
* Note: CH3OH is not form by this reaction; in this case CH3ONO is form.
* Atomic Wt. of gaseous element = $\frac{Mol. wt.}{Atomecity }$
* If W1 gm metal displace W2 gm H2 then E.Wt. of metal

 = $\frac{Wt. of metal}{Wt. of H₂ displace }$ $×$ 1.008

* If W gm metal displace V liter of H2 then E.Wt. of metal

 = $\frac{Wt. of metal }{Vol. of H₂ displace }$ $×$ 11200

* The weight of element which combine with and 8 gm of oxygen is called E. Wt. of that element.
* If W gm metal combine W gm of oxygen then
	+ - * E.Wt. of metal = $\frac{Wt. of metal }{Wt. of oxygen }$×8
* If W gm metal combine with V litre of O2 then
	+ - * E.Wt. of metal = $\frac{Wt. of metal }{Volume of O₂ at STP}$
* The weight of element which react 35$∙$5 gm of chlorine is called E.Wt. of the element.
* If W gm metal combine with V litre of Cl2 then
	+ - * E.Wt. metal = $\frac{Wt. of metal }{Volume of Cl₂ }×11.2$
* If W1 gm metal combine with W2 gm of Cl2 then
	+ - * E.Wt. metal = $\frac{Wt. of metal }{Wt. of chloride}×35.5$
* E.Wt. of acid or base = $\frac{Wt. in gm }{Volume in litre × Normality }$
* Li2O, LiOH, Li2CO3 and LiF are less soluble in water.
* LiF is partially soluble in water like MgF2
* Li and Mg are soluble in organic solvents.
* Microcosmic salt is Na(NH4)HPO4.4H2O
* Na2HPO4 + NH4Cl $\rightarrow $ Na(NH4)HPO4 + NaCl
* Borax is used for performing ‘bead test’ detecting coloured ions in qualitative inorganic analysis.
* Na(NH4)HPO4 $→ $NH3 + H2O + NaPO3
* CuSO4$ \rightarrow $CuO + SO3
* CuO + NaPO3$ \rightarrow $ CuNaPO4
* Sodium sesquicarbonate is Na2CO3.NaHCO3.2H2O.
* Sodium sesquicarbonate is neither deliquescent nor efflorescent.
* Sodium sesquicarbonate is used for wool washing.
* Mixture of Na2O2 and dil. HCl is called soda bleach.
* Commercially soda bleach known as oxone.
* Soda bleach is used for bleaching of delicate fibers.
* An aqueous solution of NaOH is called as soda lye.
* An aqueous solution of KOH is called as potash lye.
* NO2 has brown fumes and has pungent small.
* NO2 $→$ N2O4
* N2O3 is called anhydride of HNO2.
* N2O3 is obtained by action of NO with NO2.
* NO + NO2 $→$ N2O3
* N2O5 is also called the anhydride of nitric acid.
* 2HNO3  + P2O5 $\rightarrow $2HPO3 + N2O5
* The acidic strength of oxides of nitrogen is as follows
* N2O < NO < N2O3 < N2O4 < N2O5
* Phosphorus forms 2 oxides P4O6 and P4O10.
* P4O6 + 6H2O $\rightarrow $ 4H3PO3 (Phosphorus acid)
* Recessive character express only in homozygous condition.
* Law of segregation or law purity of gametes is based on monohybrid cross.
* Phenotypic ratio of monohybrid cross is 3:1.
* Genotypic ratio of monohybrid cross is 1: 2:1.
* Law of independent assortment based on dihybrid cross.
* Phenotypic ratio of dihybrid cross is 9:3:3:1.
* Phenotype of trihybrid cross is 27:9:9:9:3:3:1.
* Cross of F1 hybrid with dominant or recessive parent is called back cross.
* When F1 hybrid crossed with recessive parent then it is called test cross.
* When F1 hybrid crossed with dominant parent then it is called out cross.
* Hetrozygosity or homozygosity of an organism tested by test cross.
* Monohybrid test cross genotypic and phenotypic ratio is 1:1.
* Dihybrid test cross genotypic and phenotypic ratio is 1:1:1:1.
* Incomplete dominance was discovered by Corrence in 4 O, clock plant
* Antirrhium majus and Andalossian fowl show incomplete dominance.
* Phenotypic and genotypic ratio of incomplete dominance is 1:2:1.
* Lethal gene causes death in homozygous condition.
* Phenotypic ratio of lethal gene is 2:1.
* Sickle cell anemia is example of lethal gene.
* Qunot discovered lethal gene in mouse.
* Batson and Punnet discovered complementary gene in Lathyrus odoratus.
* Ratio complementary gene is 9:7.
* Pigment color in flower example of complementary gene.
* In Cypsela fruit shape controlled by duplicate gene.
* Ratio of duplicate gene is 5:1.
* Epistatic gene or inhibiting gene does not stabilized to other gene on same locus of same chromosome.
* Ratio recessive epistatis is 9:3:4.
* Ratio of dominant epistatis is 12:3:1.
* In cucurbit color of fruit is example of dominant epistasis.
* Process of crossing over is not shown by multiple allele.
* Blood group is example of multiple allelism.
* Pliotropic gene control number of character simultaneously.
* Pliotropic gene control flower colour is pea and seed coat colour in pea.
* Sickle cell anemia is example of pliotropy.
* Polygenic or quantitative inheritance.
* Nilsen Ehle discovered polygenic inheritance in kernel colour in wheat.
* Davenport describes quantitative inheritance in skin colour in man.
* In qualitative inheritance single dominant gene influence complete trait.
* Monogene control qualitative inheritance.
* Ratio of polygenic or quantitative inheritance is 1:4:6:4:1.
* Kernel colour in wheat, cob length in maize, human intelligence, high crop yield etc. are example of quantitative inheritance.
* Linkage found in drosophila.
* In maize incomplete linkage discovered by Hutchinson.
* Linkage reduces variation.
* Linkage is exception of Mendel law.
* Linkage group = haploid No. of chromosome.
* In Drosophila No. of linkage group is = 4.
* In maize No. of linkage group is = 10.
* In bacteria and BGA No. of linkage group is = 1.
* The character which control by sex linked gene is called sex linked character.
* Sex linkage first discovered by TH Morgan.
* Eye colour in drosophila is sex linked.
* Sex linked character show criss cross inheritance.
* When chromosome does not separate at meiosis is called non disjunction.
* Hemophilia and colour blindness is sex linked disease.
* Baldness is sex influenced trait.
* Horn character in sheep is example of sex influence gene.
* Baldness dominant in male and recessive in female.
* Sex limited gene are autosomal but their function determined by sex hormone.
* Milk production and bread development is sex limited trait.
* Crossing over is recombination of gene between non sister homologous chromosome.
* Process of crossing over term by Morgen.
* Proof of crossing over that it occure at 4 strand stage is provided by 2:2:2:2 arrangement of ascospore in Neurospora.
* In Neurospora linear arrangement of ascospore is 4:4 (such as AAAA:aaaa).
* Linkage broken by crossing over.
* Seed treated with 0-5°C break dormancy.
* Site of vernalization is apical bud.
* Melcher said low temperature induce formation of vernalin.
* Vernalization means low temperature effect.
* Vernalization replaced by gibberellins.
* Vernalization reduces time between germination and flowering.
* Vernalization reduce vegetative period.
* Vernalization induces cold resistance to plant.
* Seed of lettuce and tobacco required light for germination.
* Phenolics, tannins, coumarine, para ascorbic acid, ferulic acid and ABA induce seed dormancy.
* Ferulic acid induces dormancy in tomato.
* To break hard seed coat is called scarification.
* Chilling treatment of seed to break dormancy is called stratification.
* Seed of Capsella, pepdin germinate in presence of light.
* Seed which germinate in presence of light is called photoblastic seed.
* The seed of nigella, silane and heleborus germinate in absence of light.
* The seed which germinate in absence of light is called negatively photoblastic seed.
* Dormancy of positive photoblastic seed can break by red light.
* Seed germinate in presence of red light.
* Seed do not geminate in far red light.
* Fluctuating temperature promote seed germination.
* Gibberelin and CK induce seed germination.
* GA2 and CK break seed dormancy.
* The viability of seed can be check by 2, 3, 5-triphenyl tetrazolium chloride
* In TTC solution seed axis get pinked that seed is viable.
* Epegial germination found in bean, cotton, papaya, castor and tamarind.
* Hypogeal germination found in pea, gram, mango ground nut and all monocots, except onion.
* Nelumo nucifera have longest viability period.
* Term yerovization coined by Lysenko.
* Forulic, caumerin and hesparatin are secondary plant product.
* ABA involve in formation of winter bud.
* Leaf absence promote by ethylene.
* Leaf absecine prevent by auxin.
* Lettuce germinates only when red light is available.
* Cytokine induce morphogenesis.
* In unisexual plant sex can be change by auxin.
* Physiologically form of phytochrome is P730
* CK help to retain chlorophyll.
* Respiratory climacteric can be preventing by vitamin C.
* In root fastest growth occur behind root tip.
* Inter fasicular cambium formation is induced by CK.
* Phytochrome prevents photo oxidation and pigment destruction.
* CK discovered by tissue culture technique.
* H+ pulled out in apoplast by auxin during growth.
* Phytoalexin accumulate site of infection in plant.
* Solanaceae, Lilliaceae and Malvaceae are syncarpus.
* Complete and bisexual flower found in Cruciferae.
* 4 cruciform corolla found in Crucifrae.
* 6 stamen 2 outer small and 4 inner long found in Cruciferae.
* Tetradynamus condition found in Cruciferae.
* Bicarpelary uniloculor ovary found in Cruciferae.
* Note: But due to false septum or reptum it becomes biloculor.
* Transversily placed carple found in Cruciferae.
* Syncarpus superior ovary found in Cruciferae.
* Parital placentation found in Cruciferae and Cucurbitaceae.
* Fruit of Cruciferae is silliqua or sillequla.
* Free lateral stipule found in Malvaceae.
* Epicalyx found in Malvaceae.
* Complete and bisexual flower found in Malvaceae.
* Epicalyx is whorl of bracteoles.
* Epicalyx absent in Sida and Abutilon.
* Valvate astevation found in Malvaceae.
* Twisted astivation found in corolla of Malvaceae.
* 5 polypetalous found in Malvaceae.
* Indefinite stamen found in Malvaceae.
* Monodelphus condition found in Malvaceae.
* Epipetalous condition found in Malvaceae, Solanaceae and Compositeae.
* Monothecus anther found in Malvaceae.
* Syncarpus superior found in Malvaceae.
* Axile placentation found in Malvaceae, Solanaceae and Lilliaceae.
* Fruit of Malvaceae is capsule.
* Graminae and Legumioceae are monocarpllary.
* Crusiferae, Compositae and Solanaceae are bicarpelary.
* Cucurbitaceae and Lilliaceae are tricarplelary.
* In Paplionaceae, tendril climber, twinners, shrubs and tree are found.
* Flowers of Paplionaceae are complete bisexual and hypogynus.
* 5 sepal or gamosepalous condition found in Paplionaceae.
* 5 petal (1+2(+2) condition found in Paplioanaceae.
* Diadelphous condition found in Paplioanaceae.
* 10 stamen (9) +1 condition found in Paplionaceae.
* Monocarpelary uniloeulor superior ovary found in Paplionaceae.
* Marginal placentation found in Leguminoceae.
* Fruit of Paplionaceae is legume or lomentum.
* Paralysis of lower limb is lathyrism.
* Complete bisexual hypogynous flower found is Casepinoidaea.
* 5 Sepals and 5 petals found Casepinaceae.
* 10 stamen found in 2 whorl in Caselpinaceae.
* Monocarpelary superior unilocular ovary found in Caselpinaceae.
* Fruit of Leguminoceae is legume or lomentum.
* Complete bisexual hypogynous flower found in Mimosoideae.