BrightWay Tuition Academy Rana Town Dahranwala

Sir Zubair 03027076176

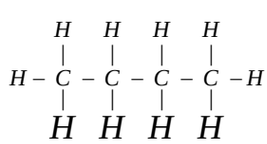
Notes Chemistry 10th

Unit 9: 1- Define reversible reaction and give example. Ans: Reactions in which the products can recombine to form reactants are called reversible reaction. H_2+I_2 ⇌ 2HI. **2-** Define Irreversible reaction with example. Ans: Reactions in which the products do not recombine to form reactants, are called irreversible reactions. $2H_2+O_2 \rightarrow 2H_2O$. **3-** Define dynamic equilibrium. OR How is dynamic equilibrium established? Ans: When reaction does not stop, only the rates of forward and reverse reactions become equal to each other but take place in opposite directions. This is called dynamic equilibrium. At equilibrium state: Rate of forward reaction = Rate of reverse reaction. **4-** Write two macroscopic characteristics of dynamic equilibrium. Ans: i) An equilibrium is achievable only in a closed system (in which substances can neither leave nor enter). ii)At equilibrium state a reaction does not stop. Forward and reverse reactions keep on taking place at the same rate but in opposite direction. **5-** Define chemical equilibrium state. Ans: When the rate of the forward reaction is the same as the rate of reverse reaction, but the composition of the reaction mixture remains constant, then this state is called a chemical equilibrium state. **6-** Define static equilibrium, explain with example. Ans: When reaction ceases to proceed, it is called static equilibrium. For Example, a building remains standing rather than falling down because all the forces acting on it are balanced. This is an example of static equilibrium. **7-** Why at equilibrium state reaction does not stop? Ans: At equilibrium state a reaction does not stop. Because Forward and reverse reactions keep on taking place at the same rate but in opposite direction. **8-** Compare microscopic characteristics of forward and reverse reactions. Ans: Forward Reaction: i) It is a reaction in which reactants react to form products ii) It takes place from left to right iii) It slows down gradually. Reverse reaction: i) It is a reaction in which products react to form reactants ii) It takes place from right to left iii) It speeds up gradually. **9-** Define active mass, how is it expressed? Ans: Generally, an active mass is considered as the molar concentration having units of mol dm^{-3}, expressed as square brackets [ ]. **10-** Define law of mass action. Ans: The rate at which a substance reacts is, directly proportional to its active mass and the rate of reaction is directly proportional to the product of the active masses of the reacting substances. **11-** Define equilibrium constant, and write its unit. Ans: Equilibrium constant is a ratio of the product of concentration of products raised to the power of coefficient to the product of concentration of reactants raised to the power of coefficient as expressed in the balanced equation. Its unit is mol dm^{-3}. **12-** If reaction quotient Qc of a reaction is more than Kc, what will be the direction of the reaction? Ans: If Qc>Kc, then reaction goes from right to left. i.e I reverse direction to attain equilibrium. **13-** What does large numerical value of Kc indicate? Ans: The large value of Kc indicates that, at equilibrium position, the reaction mixture consists of almost all products and reactants are negligible. The reaction has almost gone to completion. **14-** What does small numerical value of Kc indicate? Ans: The small value of Kc indicates that, at equilibrium position, almost all reactants are present but amount of products is negligible. Such type of reactions never go to completion. **15-** How direction of a reaction can be predicted? Ans: i) If Qc<Kc, the reaction goes from left to right ii)If Qc>Kc, the reaction goes from right to left iii) If Qc=Kc, forward and reverse reactions take place at equal rates i.e. equilibrium has been attained.

Unit 10: 16- Write characteristics of acids. Ans: i) Acids have sour taste. ii) They trun blue litmus red. iii) They are corrosive in concentrated form. **17-** Write characteristics of bases. Ans: i) Bases have bitter taste and feel slippery. ii) They turn red litmus blue. iii) they are non-corrosive except concentrated forms of NaOH and KOH. **18-** Explain the Arrhenius concept of Acids and Bases. Ans: Arrhenius Acid: Acid is a substance which dissociates in aqueous solution to give hydrogen ions. Arrhenius Base: Base is a substance which dissociates in aqueous solution to give hydroxide ions. **19-** Write names of two natural acids and their sources. Ans: Citric acid: it is obtained from Citrus fruits like lemon, oranges etc. Lactic acid: It is obtained from sour milk. **20-** What are limitations of Arrhenius concept? Ans: i) Arrhenius concept is applicable only

in aqueous medium and does not explain nature of acids and bases in non-aqueous medium. ii) According to this concept, acids and bases are only those compounds which contain hydrogen and hydroxide ions respectively. It cannot explain the nature of compounds like CO_2, NH_3 etc which are acid and base, respectively. **21-** Define amphoteric. Ans: Such a substance that can behave as an acid, as well as, a base is called amphoteric. For example H_2O acts as a base when it reacts with HCl and as an acid when it reacts with ammonia. Hence water is an amphoteric compound. **22-** Define conjugate acid and conjugate base. Ans: Conjugate Acid: A conjugate acid is a specie formed by accepting a proton by a base. Conjugate base: A conjugate base is a specie formed by donating a proton by an acid. **23-** Name two mineral acids and their formulae. Ans: Hydrochloric Acid HCl, Nitric Acid HNO_3. **24-** Explain Bronsted-Lowry concept of acid and base. Ans: Acid: An acid is a substance that can donate a proton (H^+) to another substance. Base: A base is a substance that can accept a proton (H^+) from another substance. **25-** State uses of acids. Ans: Sulphuric acid: Sulphuric acid is used to manufacture fertilizers, chemicals, explosives, paints drugs etc. Nitric acid: Nitric acid is used in manufacturing of fertilizer, explosives, paints, drugs and etching designs on copper plates. Benzoic acid: Benzoic acid is used for food preservation. **26-** Which acid is used to preserve food? Ans: Benzoic acid is used for food preservation. **27-** Define pH. What is the pH of pure water? Ans: pH is the negative logarithm of molar concentration of the hydrogen ions. pH of pure water is 7.0 **28-** Write two uses of pH. Ans: i) It is used to determine the acidic or basic nature of a solution. ii) It is used to produce medicine, culture at a microbiological particular concentration of H+ ion. **29-** Define indicators and give examples. Ans: Indicators are organic compounds. They have different colours in acidic and basic solutions. Examples: Methyl orange, Litmus, Phenolphthalein. **30-** Salts that are formed by the incomplete neutralization of a polyhydroxy base by an acid, are called basic salts. **31-** Write two characteristics of salts. Ans: i) Salts are ionic compounds found in crystalline form. ii) They have high melting and boiling points. **32-** define salts. Ans: Salts are ionic compounds generally formed by the neutralization of an acid with a base. **33-** Define neutralization. Ans: Acids react with bases to form salt and water. This process is called neutralization. **34-** Which salt is used to prepare plaster of Paris? Ans: Calcium sulphate (Gypsum) is used to prepare plaster of Paris which is used for making statues, casts, etc. **35-** Define hyperacidity. Ans: Sometimes stomach produces too much acid. It causes stomach acidity also called hyperacidity.

Unit 11: 36- What is vital theory? Who put forward it? Ans: Swedish chemist Jacob Berzellius put forward the "Vital Force Theory". According to this theory organic compounds could not be prepared in laboratories because they were supposed to be synthesized under the influence of a mysterious force called vital force, inherent only in living things. **37-** What is molecular formula? Give example. Ans: The formula which represents the actual number of atoms in one molecule of the organic compound is called the molecular formula. For example, molecular formula of butane is C_4H_{10}. **38-** What is structural formula? Give example. Ans: Structural formula of a compound represents the exact arrangement of the different atoms of various elements present in a molecule of a substance. For example structural formula of butane C_4H_{10} is:



39- Define heterocyclic compounds, and give example. Ans: Cyclic compounds that contain one or more atoms other than of carbon atoms in their rings are called heterocyclic compounds. For example Pyridine, Thiophene. **40-** Define Homocyclic or Carbocyclic compounds. Ans: Homocyclic or carbocyclic compounds contain rings which are made up of only one kind of atoms, i.e. carbon atoms. **41-** Define organic compound. Ans: Organic compounds are compounds of carbon and hydrogen and their derivatives. **42-** What are aromatic compounds? Give example. Ans: These organic compounds contain at least one benzene ring in their molecule. For example Benzene, Naphthalene. **43-** Define isomerism. Ans: The compounds are said to be isomers if they have the same molecular formula but different arrangement of atoms in their molecules or different structural formula. **44-** What is catenation? Give example. Ans: The ability of carbon atoms to link with other carbon atoms to form long chains and large rings is called catenation. Carbon

shows catenation, it is mainly due to the reason that C-C bonds are much stronger (335kJ mol^{-1}). **45-** How is coal formed? OR Define carbonization. Ans: Coal is formed by the decomposition of dead plants buried under the Earth's crust millions of years ago. Conversion of wood into coal is called carbonization. **46-** What is destructive distillation of coal? Name the different types of the products obtained by the destructive distillation. Ans: The strong heating of coal in the absence of air is called destructive distillation. Name of products obtained by the destructive distillation of coal: coal gas, Ammonical Liquor, coal tar, coke. **47-** What is the importance of natural gas? Ans: Natural gas is used as fuel in homes as well as in industries. It is used as fuel in automobiles as compressed natural gas (CNG). It is also used to make carbon black and fertilizer. **48-** Name the sources of organic compound. Ans: i) coal ii) natural gas iii) petroleum iv) animals v) plants. **49-** Write classification of coal. OR Name different types of coal. Ans: i) Peat ii) Lignite iii) Bituminous iv) Anthracite **50-** Write two uses of organic compound. Ans: i) Uses as food: The food we eat daily such as milk, eggs, meat, vegetables, etc contain carbohydrates, proteins, fats, vitamins etc are all organic stuff. ii) Uses as raw material: Organic compounds are used to prepare a variety of materials, such as rubber, paper, ink, drugs, paints, pesticides etc. **51-** How are organic compounds used as food? Ans: The food we eat daily such as milk, eggs, meat, vegetables, etc contain carbohydrates, proteins, fats, vitamins etc are all organic stuff. **52-** Define homologous series. Ans: Organic compounds are divided into groups of compounds having similar chemical properties. Each group is known as a homologous series. **53-** Define functional group and give example. Ans: An atom or group of atoms or presence of double or triple bond which determines the characteristics properties of an organic compound is known as the functional group. For example, -OH group is the functional group of alcohols, which gives characteristic properties of alcohols.

Unit 12: 54- Define hydrocarbons. Ans: Hydrocarbons are those compounds which are made up of only carbon and hydrogen elements, for example methane CH_4, Ethane C_2H_6. **55-** Differentiate b/w saturated hydrocarbons & Unsaturated hydrocarbons. Ans: Saturated hydrocarbons: The hydrocarbons in which all the four valencies of carbon atoms are fully satisfied by single bonds with other carbon atoms and hydrogen atoms are called saturated hydrocarbons. Unsaturated hydrocarbons: The hydrocarbons in which two carbon atoms are linked by a double or a triple bond are called unsaturated hydrocarbons. **56-** Why are the alkanes called paraffins? Ans: In alkanes, all the bonds of carbon atoms are single that means valencies of carbon atoms are saturated. Therefore, they are least reactive. That is the reason, alkanes are called paraffins. **57-** Write physical properties of alkanes. Ans: i) The density of alkanes increases gradually with the increase of molecular size. ii) They are non-polar, therefore, they are insoluble in water but soluble in organic solvents. **58-** What is hydrogenation? Give example. Ans: Hydrogenation means addition of molecular hydrogen to an unsaturated hydrocarbon in the presence of a catalyst (Ni, Pt) to form saturated compound. For example, On industrial scale, conversion of vegetable oil into Banaspati ghee. Oil+$H_2 \xrightarrow{Ni} Banaspati\ ghee$. **59-** Write uses of methane and ethane. Ans: i) Methane and ethane both are used as domestic fuel. ii) Compressed natural gas (CNG) is used as automobile fuel. **60-** Write uses of Ethene (Ethylene). Ans: i) For artificial ripening of fruits ii) As a general anaesthetic iii) For manufacture of polythene. **61-** Define process of burning. Ans: Alkanes burn in the presence of excess of air or oxygen to produce a lot of heat, carbon dioxide and water. This reaction takes place in automobile combustion engines, domestic heaters and cooking appliances. **62-** What are addition reactions? Explain with example. Ans: When alkynes react with other substances, two weak bonds are readily broken one by one and addition takes place easily. This process is called addition. For example, bromine adds acetylene to form tetrabromoethane. **63-** Why are the alkenes called 'olefins'? Ans: These compounds are also known as olefins (a Latin word meaning oil forming) because first members form oily products when react with halogens.

Unit 13: 64- Define bio chemistry. Ans: Biochemistry is a field that has a great importance today. It deals with the naturally occurring macromolecules such as carbohydrates, proteins, lipids, nucleic acids and vitamins. **65-** What are carbohydrates? Give example. Ans: Carbohydrates are macromolecules defined as polyhydroxy aldehydes or ketones. For example fructose and glucose. **66-** Define photosynthesis. OR How

plants synthesize carbohydrates? Ans: Carbohydrates are synthesized by plants through photosynthesis process from carbon dioxide and water in the presence of sunlight and green pigment chlorophyll. $6CO_2+6H_2O \rightarrow C_6H_{12}O_6+6O_2$. **67-** Describe the uses of carbohydrates. Ans: i) carbohydrates are energy providing materials ii) They regulate the amount of sugar level in our body iii) They regulate blood pressure. **68-** Give the characteristics of polysaccharides. Ans: i) Polysaccharides are macromolecular carbohydrates consisting of hundreds to thousands of monosaccharides. ii) They are amorphous. iii) They are tasteless and insoluble in water. **69-** Name any two polysaccharides. Ans: i) starch ii) cellulose **70-** Write physical properties of monosaccharides. Ans: i) Monosaccharides are white crystalline solids. ii) They are soluble in water. iii) They have sweet taste. **71-** Differentiate b/w glucose & fructose. Ans: Glucose is a pentahydroxy aldehyde while fructose is pentahydroxy ketone having general formula $C_6H_{12}O_6$ but the open chain structures different. **72-** How is gelatin obtained? Ans: Proteins are found in bones. When bones are heated they give gelatin. Gelatin is used to make bakery items. **73-** Differentiate b/e essential & non-essential amino acids. Ans: There are 20 amino acids. Ten out of twenty amino acids can be synthesized by human body. These amino acids are called non-essential amino acids. While the other ten which cannot be synthesized by our bodies are called essential amino acids. **74-** Differentiate b/w vegetable ghee & oil. Ans: Vegetable oils are triester of glycerol and fatty acids of unsaturated long chains. These oils are hydrogenated in the presence of nickel catalyst at 250°C to 300°C to form vegetable ghee. Oil+$H_2 \xrightarrow{Ni} Banaspati\ ghee$. **75-** What is function of DNA? Ans: DNA is heredity material that transmits heredity characteristics from parents to offspring. **76-** What do you mean by genetic code of life? Ans: DNA is the permanent storage place for genetic information in the nucleus of a cell. It carries and stores all genetic informations of the cell. It passes these informations as instructions from generation to generation how to synthesize particular proteins from amino acids. These instructions are called genetic code of life. **77**- Describe the sources and uses of vitamin A. Ans: Sources: Dairy products, eggs, oils and fats, fish. It can also be obtained from the beta-carotene found in green vegetables, carrots and liver. Uses: Maintains the health of the epithelium and acts on the retina's dark adaptation mechanism. **78-** Describe the sources of vitamin A & D. Ans: Sources of vitamin A: Dairy products, eggs, oils and fats, fish. It can also be obtained from the beta-carotene found in green vegetables, carrots and liver. Sources of vitamin D: Fish liver, dairy products, oils and fats. Vitamin D is formed in the skin when it is exposed to sunlight. **79-** Describe the types of vitamins. OR Differentiate b/w fat soluble and water soluble vitamins. Ans: Vitamins are divided into two types i)Fat soluble vitamins: The vitamins which dissolve in fats are called fat soluble vitamins. These are vitamin A, D, E and K. Water soluble vitamins: The vitamins that dissolve in water are called water soluble vitamins. These vitamins are B complex and vitamin C.

Unit 14: 80- Differentiate b/w atmosphere and environment. Ans: Atmosphere: Atmosphere is the envelope of different gases around the earth. Environment: Environment of an organism consists of all the biotic and abiotic components around it. It includes air, water, soil and other living and non-living things. **81-** State composition of atmosphere by volume. Ans: Nirtogen 78.09%, Oxygen 20.94%, Argon 0.93%, Carbon dioxide 0.03%. **82-** What is stratosphere? Ans: This region is next to troposphere and extends upto 50km. in this region, temperature rises gradually upto 2°C. The presence of ozone in this region is responsible for the rise of temperature in stratosphere. **83-** Define atmosphere and name its different layers. Ans: Atmosphere is the envelope of different gases around the earth. Depending upon the temperature variation, atmosphere is divided into four regions: i)Troposphere ii)Stratosphere iii) Mesosphere iv) Thermosphere **84-** What are natural systems of earth? Name them. Ans: The Earth has four natural systems; i) Lithosphere ii) Hydrosphere iii) Atmosphere iv) Biosphere. **85-** Differentiate b/w primary and secondary air pollutants. Ans: Primary pollutants: Primary pollutants are the waste or exhaust products driven out because of combustion of fossil fuels and organic matter. These are oxides of sulphur, oxides of carbon etc. Secondary pollutants: Secondary pollutants are produced by various reactions of primary pollutants. These are sulphuric acid, carbonic acid, nitric acid etc. **86-** Why is carbon dioxide (CO_2) called greenhouse gas? OR CO_2 is responsible for heating up atmosphere, how? Ans: CO_2 allows ultraviolet (UV) radiations to pass through it, but does not

allow the infrared (IR) radiations to pass through it. It traps some of the infrared radiations emitted by the earth. Due to which average temperature of earth gradually increases. That's why CO_2 is called greenhouse gas. **87-** State the major sources of CO and CO_2 emission. Ans: CO and CO_2 both are emitted due to volcanic eruption. ii) By decomposition of organic matter iii) Combustion of fossil fuels in engine of automobile, kiln of industry, iv) Forest fires and burning of wood. **88-** Write effects of SO_2. Ans: i) SO_2 is a colourless gas having irritating smell. It causes severe respiratory problems to asthmatic people. ii) SO_2 forms sulphuric acid which damages buildings and vegetations. **89-** Explain greenhouse effect. Ans: CO_2 and water vapors allow ultraviolet (UV) radiations to pass through it, but does not allow the infrared (IR) radiations to pass through it. It traps some of the infrared radiations emitted by the earth. Due to which temperature of earth gradually increases. This is called greenhouse effect. **90-** Define global warming. Ans: Greenhouse effect causes increase in average temperature of earth. This phenomenon is called global warming. **91-** Write two effects of global warming. Ans: i) It melts glaciers and snow caps that are increasing flood risks. ii) Sea-level is rising due to which low lying areas are liable to be submerged, turning previously populated areas no longer habitable. iii) Extreme weather events are occurring more commonly and intensely than previously. **92-** How is acid rain formed? Ans: Acid rain is formed on dissolving acidic air pollutants such as sulphur dioxide and nitrogen dioxide by rain water. **93-** state effects of acid rain. Ans: i) Acid rain increases the acidity of the soil. ii) Acid rain directly damages the leaves of trees and plants and limiting their growth. iii) It is harmful for aquatic life. **94-** Plants are decreasing day by day. Why? Ans: Acid rain increases the acidity of the soil. Many crops and plants cannot grow properly in such soil. Even old trees are affected due to acidity of soil. Their growth is retarded. They get dry and die. **95-** How is ozone layer formed in stratosphere? Ans: The mid stratosphere has less UV light passing through it. Here O and O_2 recombine to form ozone which is an exothermic reaction. Ozone formation in this region results I formation of ozone layer. **96-** Point out serious effects of ozone depletion. Ans: i) Ozone depletion enables ultraviolet radiations of sun to reach to the earth that can cause skin cancer to human beings and other animals. ii) Decreased ozone layer will increase infectious diseases like malaria. iii) It can change the wind patterns, resulting in climatic changes all over the world. **97-** Write two reasons of ozone depletion. Ans: i) Ozone layer is being depleted through various chemical reactions. ii) Chlorofluorocarbons (CFCs) are major cause of depletion of ozone layer. These compounds leak in one way or other escape and diffuse to stratosphere.

Unit 15: 98- What are properties of water? Ans: i) Pure water is colourless, odourless and tasteless. ii) It is neutral to litmus. iii) Its freezing point is 0^oC and boiling point is 100^oC at sea level. iv) Its maximum density is 1 gcm^{-3} at 4^oC. v) It is an excellent solvent for ionic as well as molecular compounds. **99-** What is capillary action? Ans: Capillary action is the process by which water rises up from the roots of plants to leaves. This process is vital for the survival of the land plants. **100-** Explain water as solvent. Ans: Water is universal solvent because it can dissolve almost all the minerals. Its ability to dissolve substances is because of two unique properties of water. i) Polarity of water molecule ii) Exceptional hydrogen bonding ability. **101-** Why has water molecule polar nature? Ans: Water molecule is formed by oxygen and hydrogen bonding. Water molecule has polar structure, i.e one end of the molecule is partially positive while the other end is partially negative because of electro-negativity difference between oxygen and hydrogen atoms. **102-** Why are non-polar compounds insoluble in water? Ans: Because there is no force of attraction between polar compound and water molecule. **103-** Differentiate b/w soft and hard water. Ans: Soft water: Soft water is that water which produces good lather with soap. Hard water: Hard water is that water which does not produce lather with soap. **104-** What are the causes of hardness in water? Ans: The rain water while coming down absorbs carbon dioxide from the atmosphere. The water mixed with carbon dioxide, when passes through the beds of the soil, converts insoluble carbonates of calcium and magnesium into soluble bicarbonates. It may also dissolve chlorides and sulphates of calcium and magnesium. These salts make the water hard. **105-** Write disadvantages of hard water. Ans: i) Hard water consumes large amount of soap in washing purposes. ii) Drinking hard water causes stomach disorders. iii) Hard water is unfit for use in steam engines, boilers and turbines. **106-** Write disadvantages of detergents. Ans: Detergents are non-biodegradable. When household

water containing these detergents is discharged in streams, ponds, lakes and rivers, it causes water pollution. **107-** Why are pesticides used? Ans: Pesticides are used either directly to kill or control the growth of pests. Pests may be weeds, herbs, insects, fungi, viruses etc. **108-** Differentiate b/w biodegradable and non-biodegradable materials. Ans: Bio degradable material: The materials that can be decomposed into simpler substances by microorganisms like bacteria. Non-biodegradable material: The materials that cannot be decomposed into simpler substances by microorganisms like bacteria. **109-** Define water pollution. Ans: Water pollution is a contamination of water bodies. Water pollution occurs when pollutants are discharged directly or indirectly into water bodies without adequate treatment to remove harmful compounds. **110-** write effects/ disadvantages of water pollution. Ans: i) It is hazardous to human health. Drinking polluted water can cause cholera, typhoid and diarrhea. ii) It is damaging aquatic life. iii) It is harmful for animals and birds. **111-** Differentiate b/w Dysentery & Cholera. Ans: Dysentery: Dysentery is an intestinal disease which is typically caused by certain bacteria or parasites. It is characterized by severe diarrhea. Cholera: Cholera is an acute infection caused by the bacteria 'Vibrios cholerae', which may be found in water contaminated by human feaces. Cholera causes severe diarrhea and can be fatal. **112-** Write a note on Fluorosis & Typhoid. Ans: Fluorosis: Fluorosis is a disease caused by the consumption of excess fluoride. Fluorosis can cause bones and teeth damage. Typhoid: A dangerous bacterial disease often spread by contaminated water or by food prepared with contaminated water.

Unit 16: 113- Define gangue & metallurgy. Ans: Gangue: The earthly and other impurities associated with the minerals are known as gangue. Metallurgy: The process of extraction of a metal in a pure state on a large scale from its ore by physical or chemical means is called metallurgy. **114-** Explain froth flotation process. Ans: Froth flotation process is based on the wetting characteristic of the ore and the gangue particles with oil and water, respectively. The ore particles are preferentially wetted by oil and the gangue particles by water. The whole mixture is agitated with compressed air. Hence, oil coated ore particles being lighter come to the surface in the form of froth that can be skimmed. **115-** differentiate b/w minerals & ores. Ans: Minerals: The solid natural materials found beneath the Earth's surface, which contains compounds of metals in the combined state along with earthly impurities, are called minerals. Ores: Those minerals from which the metals are extracted commercially at a comparatively low cost with minimum effort are called ores of the metals. **116-** Name two ores of copper. Ans: i) Copper glance ii) chalcopyrite **117-** What is gravity separation? Ans: Gravity separation is based on the difference in densities of the metallic ore and the gangue particles. In this process, the powdered heavy metal bearing ore settles down on agitation in a stream of water, while the lighter gangue particles are carried away by the water. **118-** Explain roasting. Ans: It is a process of heating the concentrated ore to a high temperature in excess of air. For example, copper pyrite is strongly heated in excess of air to convert it into a mixture of cuprous sulphide and ferrous sulphide, while impurities react with oxygen to form volatile oxides. **119-** What is Electromagnetic separation? Ans: Electromagnetic separation is based on the separation of magnetic ores from the non-magnetic impurities by means of electromagnets or magnetic separators. The powder ore is dropped over a leather belt moving over two rollers, one of which is magnetic. The non-magnetic ore falls first and the magnetic ore gets attracted and falls farther away. **120-** Define blister copper. Ans: The metal melted in bassemerization, is shifted from the converter to sand moulds and is allowed to cool. The dissolved gases escape out forming blisters on the surface of the solid copper. Therefore, it is called blister copper. It is about 98% pure copper. **121-** Name two materials used in solvay's process. Ans: i) Sodium chloride or brine ii) Limestone iii) Ammonia gas. **122-** Write four advantages of Solvay's process. Ans: i) It is a cheap process as raw materials are available at very low prices. ii) Carbon dioxide and ammonia are recovered and reused. iii) Process is pollution free, because the only waste in calcium chloride solution. iv) Sodium carbonate of very high purity is obtained. **123-** Name raw materials used in manufacturing urea. Ans: i) Ammonia gas ii) carbon dioxide gas. **124-** What is importance of urea? OR Why is urea is an important compound? Ans: i) It is used as raw material for the manufacture of many important compounds. ii) It is used to make explosives. iii) It is widely used world over in the agriculture sector as a fertilizer. **125-** Which

petroleum fraction is used in dry cleaning? What is its boiling range? Ans: Gasoline or petrol is used in dry cleaning. Its boiling range is 80 to 170°C. **126-** Describe the formation of petroleum. Ans: Petroleum is formed by the decomposition of dead plants and animals buried under Earth's crust millions of years ago. **127-** Give two uses of kerosene oil. Ans: i) It is used as domestic fuel. ii) A special grade of it is used as jet fuel. **128-** Differentiate b/w Diesel oil & Fuel oil. Ans: Diesel oil: Composition of Diesel oil is C_{13} to C_{15}. Its boiling range is 250 to 350°C. It is used as fuel for buses, trucks, railway engines, tubewell engines and other heavy vehicles. Fuel oil: Composition of Fuel oil is C_{15} to C_{18}. Its boiling range is 350 to 400°C. It is used in ships and industries to heat boilers and furnaces. **129-** What is residual oil? Ans: The residual oil, which does not vapourize under conditions, is collected and heated above 400°C for further fractional distillation. It is used to produce lubricants, paraffin wax, asphalt and petroleum coke. **130-** Differentiate b/w Crude oil and Residual oil. Ans: Crude oil: Decomposition of dead plants and animals buried under Earth's crust millions of years ago, formed a dark brownish viscous crude oil. Residual oil: The residual oil, which does not vapourize under conditions, is collected and heated above 400°C for further fractional distillation. It is used to produce lubricants, paraffin wax, asphalt and petroleum coke. **131-** What is petroleum? Ans: Petroleum is a natural product found under the Earth's crust trapped in rocks. Petroleum means rock oil. It is a complex mixture of several gaseous, liquid and solid hydrocarbons having water, salts and earth particles with it.

Important Long Questions:

Unit 9: 1- Write down the macroscopic characteristics of dynamic equilibrium. OR Write down the macroscopic characteristics of forward and reverse reactions (page 6). **2-** State the law of mass action in detail (page 6,7). **3-** Define equilibrium constant and explain, how is it helpful in predicting extent of a reaction? (page 9,13).

Unit 10: 4- Explain Arrhenius concept of Acids and Bases (page 21,22). **5-** Explain lewis concept of acids and bases (page 25).

Unit 13: 6- How monosaccharides are prepared? Give their characteristics. (page 102). **7-** Explain the importance of carbohydrates in our body. (page 103). **8-** Explain the sources and uses of proteins. (page 105). **9-** Explain the sources and uses of lipids. (page 106). **10-** Define vitamins and what is the significance/importance of vitamins? (page 109,110).

Unit 14: 11- Explain the sources of air pollutants. (page 122,125). **12-** Write a note on greenhouse effect. (page 123). **13-** How is acid rain formed and what are its effects? (page 127-128).

Unit 15: 14- Explain the methods of removing permanent hardness. (page 142). **15-** Explain industrial effluents (page 144). **16-** Explain important waterborne diseases. (page 146).

Unit 16: 17- Write four advantages of Solvay's process. (short Q#122). **18-** How urea is manufactured? Explain showing the flow sheet diagram. (page 164-65). **19-** Write a note on fractional distillation of petroleum. (Page 167-68).