VIVEK TUTORIALS

Chemistry

ALL POSSIBLE QUESTIONS

PRACTICE SHEET

STRICTLY & EXCULSIVE FOR VIVEK TUTORIALS STUDENTS

Date : 19/Aug/2019 **Grade: 8th (ICSE)** **Time: 3HRS**

1 2 3 5

Choose the correct alternative:

1. Constituents of air can be separated by 1
   (a) filtration (b) liquefication (c) crystallization (d) sedimentation
2. The ability of metals to be drawn into thin sheets is known as 1
   (a) Ductility (b) Malleability (c) Sonorosity (d) Conductivity
3. Generally non-metals are not lustrous. Which of the following non-metals is lustrous? 1
   (a) Sulphur (b) Phosphorus (c) Nitrogen (d) Iodine
4. The lustrous non-metal which conducts electricity, but does not sublime on heating 1
   (a) Sulphur (b) Graphite (c) Iodine (d) Silicon
5. The substance formed as a result of chemical reaction is called 1
   (a) catalyst (b) reactant (c) product (d) intermediate
6. An example of physical change is 1
   (a) boiling of water
   (b) boiling of an egg
   (c) burning of wood
   (d) making curd
7. An example of a chemical change is 1
   (a) glowing of electric bulb (b) magnetizing an iron needle (c) crushing an ice-cube (d) to burn a matchstick
8. Food cans are coated with tin and not with zinc because 1
   (a) Zinc is costlier than tin (b) Zinc has higher melting point than tin
   (c) Zinc is more reactive than tin (d) Zinc is less reactive than tin
9. Under normal conditions 0°C and 100°C are 1
   (a) melting point of ice and boiling point of water
   (b) boiling point of water and freezing point of ice
   (c) melting point of water and boiling point of water
   (d) all of the above
10. Amalgams are 1
    (a) Alloys of mercury with gold and silver
    (b) Alloys of mercury with any other metal
    (c) alloy of mercury with zinc
    (d) All the above
11. Brass is an alloy of 1
    (a) Copper and tin (b) Copper and zinc (c) Zinc and lead (d) Lead and tin
12. Alloys are homogeneous mixtures of a metal with a metal or non-metal. Which among the following alloys contain non-metal as one of its constituents? 1
    (a) Brass (b) Gun metal (c) Amalgam (d) Steel
13. A strong electrolyte is 1
    (a) calcium hydroxide
    (b) sugar solution
    (c) copper metal

(d) sodium chloride

14. Insoluble salts are generally prepared by 1
(a) synthesis (b) neutralization (c) precipitation (d) none of these
15. A white shining metal with atomic mass 27 is obtained by electrolytic reduction. It is a good conductor of electricity and is a very reactive metal. It is used in making a wide variety of tools and devices. The metal is 1
(a) aluminium (b) iron (c) silver (d) zinc
16. In the blast furnace iron oxide is reduced by 1
(a) Lime stone (b) Calcium silicate
(c) Carbon monoxide (d) Carbon dioxide
17. Chemical changes are 1
(a) Always irreversible (b) Always reversible
(c) Mostly irreversible (d) Mostly reversible
18. In which of the following processes is light absorbed? 1
(a) sublimation (b) burning
(c) photosynthesis (d) rusting
19. Which one of the following four metals would be displaced from the solution of its salts by other three metals? 1
(a) Mg (b) Cu (c) Zn (d) Fe
20. Which of the following is not true of metals? 1
(a) Metals are good conductors of electricity
(b) Metals are malleable and ductile
(c) Metals form non-polar covalent compounds
(d) Metals will have 1 or 2 or 3 electrons in their valence shell
21. A physical change is 1
(a) permanent
(b) temporary
(c) both permanent and temporary
(d) none of these
22. An element 'X' is soft and can be cut with a knife. This is very reactive to air and cannot be kept in open air. It reacts vigorously with water. Identify the element from the following 1
(a) Mg (b) Na (c) S (d) Hg
23. _____ is the purest form of iron. 1
(a) Cast iron (b) Steel (c) Stainless steel (d) Wrought iron
24. The actual reducing agent in the extraction of iron in the blast furnace is 1
(a) Coke (b) Carbon monoxide (c) limestone (d) carbon dioxide
25. The process of separating a mixture of two or more liquids with different boiling points is called 1
(a) filtration (b) distillation (c) fractional distillation (d) decantation
26. Silver articles become black on prolonged exposure to air. This is due to the formation of 1
(a) AgCN (b) Ag_2O (c) Ag_2S (d) Ag_2S and AgCN
27. An alloy is 1
(a) An element (b) A compound
(c) A homogeneous mixture (d) A heterogeneous mixture
28. Which of the following methods is suitable for preventing an iron frying pan from rusting? 1
(a) Applying grease (b) Applying paint
(c) Applying a coating of zinc (d) All the above
29. During electroplating the article to be plated is made 1
(a) cathode (b) anode © electrolyte (d) anode mud
30. _____ is used as an electrode in dry cell. 1
(a) Zinc (b) Iron (c) Mercury (d) Aluminium
31. Which of the following is produced by burning organic substances? 1

(a) Hydrogen (b) Oxygen
(c) Carbon dioxide (d) Nitrogen

32. The metal which does not react with dilute H_2SO_4 1
(a) Mg (b) Zn (c) Al (d) Hg
33. Formation of ammonia from its elements is a 1
(a) direct combination (b) neutralization
(c) synthesis (d) precipitation
34. The metal is a liquid at room temperature 1
(a) Potassium (b) Zinc (c) Gold (d) Mercury
35. During which of the following changes, are new substances formed? 1
(a) melting
(b) sublimation
(c) dissolving
(d) burning

Fill in the blanks:

36. Addition of cryolite in the molten state of subdivision of fused alumina during electrolytic reduction enhances _____. 1
37. A change in which matter undergoes a change but the total mass of substance is unaltered is a _____ change. 1
38. The formula of silver [I] chloride is _____ 1
39. Kinetic energy of molecules in helium is _____ compared to the kinetic energy of molecules in water. 1
40. $CuFeS_2$ is known as _____. 1
41. _____ is negatively charge electrode. 1
42. _____ are biochemical catalysts. 1
43. Conversion of vapour [or gas] into a liquid is termed _____. 1
44. A soluble solid is separated from an insoluble solid by _____. 1
45. _____ process involves the loss of electron. 1
46. Element _____ has the symbol derived from its Laltin name 'plumbum'. 1
47. In naphthalene, the inter-particle attractive is _____. 1
48. Pine oil used in froth floatation process acts as a _____. 1
49. A change in which a substance retains its identity is a _____ change. 1
50. The basic unit of an element is a/an _____ 1
51. The law of conservation of mass, is strictly valid if mass and _____ are considered together. 1
52. The substance added to lower the fusion temperature from 2050°C to 950°C is _____. 1
53. Reactions taking place in sunlight are called _____ reactions. 1
54. Atoms contains _____ with positively charged _____ 1
55. When inter-particle space increases, the inter-particle attractive force _____. 1
56. Collector used in froth floatation process is _____. 1
57. Digestion of food is a _____ change. 1
58. From the elements - He, Br, Pt & O; the element which forms a polyatomic molecule is _____ & which is liquid at room temperatures is _____. 1
59. In dry cells, the zinc container acts as a _____. 1
60. An example of a monoatomic molecule is _____. 1
61. _____ compounds have fixed melting and boiling points. 1
62. The valency of iron in FeO is _____ of chlorine [chloride] in $CaCl_2$ is _____ and of dichromate in $K_2Cr_2O_2$ is _____. 1
63. A non-metal kept under water is _____. 1
64. _____ is used in machine parts due to its high tensile strength. 1
65. Formation of rust on a bicycle rim is a _____ change. 1
66. The reaction between an acid solution and a base is a _____ reaction. 1
67. The metals zinc and tin are present in _____. 1

68. Compounds are _____ in nature. 1
69. Dissolution of lead nitrate in water is deemed as a _____ change. 1
70. The metal whose cation is discharged at cathode by accepting two electrons from cathode is _____ 1
71. During electrolytic reduction of alumina, the inert electrode is _____ to a neutral gas. 1
72. The metal having the highest density is _____. 1
73. The temperature, at which a solid changes into a liquid, is called _____. 1
74. The glowing of a tube-light is a _____ change. 1
75. _____ is the process of decomposing a compound by passing electric current through its aqueous solution. 1
76. The impurity which separates out on addition of a cone, solution of alkali to impure bauxite is _____. 1
77. _____ is used to convert starch into glucose. 1
78. Zinc is used in galvanising, since iron from Fe^{2+} ions _____ readily from zinc. 1
79. Dust in air is an example of _____ mixture. 1
80. A non-metal which is good conductor of electricity is _____ 1
81. Energy required for completion of a physical change is _____ when the change is reversed. 1
82. The reactive element from the two monoatomic elements is _____. 1
83. Matter is added or removed during a _____. 1
84. Reactions that take place with evolution of heat are called _____ reactions. 1

Name the following:

85. The salt obtained when a chemical change takes place on addition of iron to dilute sulphuric acid. 1
86. Name the catalyst used in hydrogenation of vegetable oil which gives Veg. ghee. 1
87. Name one metal which forms more than one type of positive ions. 1
88. Name an acid with which iron is rendered passive. 1
89. Two metals which do not react with water. 1
90. Name two products removed from blast furnace during extraction of iron. 1
91. Name one ion responsible for blue colour of an aqueous solution of copper sulphate. 1
92. Name the non-metal used in the preparation of Ayurvedic and Allopathic drugs. 1
93. Name the natural process by which oxygen is removed and carbon dioxide is produced in the atmosphere. 1
94. A metallic carbonate which on heating forms respective metal. 1
95. Name two substances other than oxygen that support combustion. 1
96. A metal other than zinc which displaces copper from copper (II) sulphate solution. 1
97. Name a gas added to air by photosynthesis. 1
98. The form of iron which has 0.1 to 0.5% carbon impurity and is used in making nuts and bolts 1
99. Name the change in which the composition and chemical properties of the reacting substance get changed. 1
100. A metal other than mercury in a liquid amalgam. 1
101. A gas acting both as an oxidizing as well as reducing agent. 1
102. Name a metal which is found abundantly in the earth's crust. 1
103. The gaseous product of the chemical change which takes place during respiration in living organisms. 1
104. Name the metal which is used in galvanizing iron. 1
105. Name the type of change involved in crystallisation. 1
106. The process by which sulphide ores are concentrated. 1
107. Name the chemical reaction which can be used to distinguish between more reactive and less reactive element. 1
108. Name an alloy of zinc used in the simple voltaic cells. 1
109. Name the electrolyte used in electroplating a spoon with silver. 1
110. Name two metals which are found in nature in free state. 1
111. The product of the chemical change on keeping a polished iron nail exposed to the atmosphere. 1
112. Name two metals which cannot displace hydrogen from dilute acids. 1

113. Name two substances formed during the combustion of candle. 1
114. Name two metals which do not corrode easily. 1
115. Name the process used for the enrichment of sulphide ore. 1
116. The process by which sulphide ores are concentrated. 1
117. An oxidizing agent which does not contain oxygen. 1
118. The product obtained during a physical change when water converts from a liquid into a solid. 1
119. Two metallic oxides decompose on heating. 1
120. Name two metals which react with cold water. 1
121. A form of energy required for a chemical change. 1
122. Name an ore which is concentrated by magnetic separation. 1
123. A metal other than manganese present in duralumin but not in magnalium. 1
124. Sulphide ore of mercury 1
125. A person suffering from acidity is advice to take an antacid. Identify the chemical reaction involved. 1
126. Name a process used for the enrichment of sulphide ore. 1
127. Name two metals which can displace hydrogen from dilute acids. 1
128. Name two elements whose hydroxide are very soluble in water and produce alkaline solutions. 1
129. Name the natural process by which oxygen is added and carbon dioxide is removed from the atmosphere. 1
130. Name two methods by which rusting can be prevented. 1
131. Name two elements which show phenomenon of allotropy. 1
132. The process by which iron ore is concentrated. 1
133. The process of heating of ore in the presence of air 1
134. Name the metal which is most abundant in earth's crust. 1
135. Metal which is rendered passive on reaction with concentrated HNO_3 1
136. Gas obtained when zinc blende (ZnS) is roasted 1
137. The metal rendered passive or unreactive by cone, or fuming nitric acid. 1
138. Name the metal whose foils are used for packing of food materials. 1

Define the following:

139. Catalyst. 1
140. Exothermic reaction 1
141. Endothermic reaction. 1

Answer the following in one or two sentences:

142. Name three biochemical catalysts found in the human body. 1
143. With reference to the liquid state of matter - answer the question: 1
At what point will the particles become free and escape as gas.
144. Which metal is used for making sink pipes, sanitary pipe fittings and in automobile batteries. 1
145. What is meant by u? 1
146. What is added to steel to make it stainless steel? 1
147. With reference to the liquid state of matter - answer the question: 1
How does the stored energy, have effect on inter-particles space.
148. Which non-metal is used in the match industry, fireworks and rat poison? 1
149. Give one example of double decomposition reaction. 1
150. An element reacts with oxygen to form an oxide which dissolves in dilute hydrochloric acid. The oxide formed also turns moist red litmus blue. Is the element a metal or a non-metal? 1
151. With reference to the liquid state of matter - answer the question: 1
The heat energy supplied to the liquid is absorbed by its molecule & stored as which form of energy.
152. Write the chemical formulae of one main ore of iron and aluminium. 1
153. Mention two examples of weak electrolytes. 1
154. What is meant by chemical equation? 1
155. Explain the meaning of the terra 'matter'. 1
156. Which non-metal is used for making solar cells and microchips? 1
157. Mention two applications of electrolysis. 1
158. Give the biological importance of nitrogen present in the air which we breath. 1

159. With reference to the liquid state of matter - answer the question: 1
On heating the liquid, do the particles gain or lose energy.
160. Which metal is used in amalgams? 1
161. Name a chemical substance which on heating leaves no residue behind. 1
162. Give two examples of non-electrolytes. 1
163. Write the constituents of electrolyte for the extraction of aluminium. 1
164. 'Non-metals are good oxidising agents': Justify this statement. 1
165. State two important processes, which release CO_2 into atmosphere. 1
166. Give two examples of reducing agents. 1
167. In the extraction of iron, a mixture of limestone, coke and iron is added to the blast furnace. In this context, give the equation for the reduction of iron ore. 1
168. Correct the following statement: 1
Haematite is the chief ore of aluminium.
169. Why chemical equations are balanced? 1
170. State two necessary conditions for rusting. 1
171. What is the difference between calcination and roasting? 1
172. Arrange the following metals in order of their decreasing reactivity: Fe, Zn, Ca, Mg, 1
Cu, Ag.
173. A non-metal X exists in two different forms Y and Z. Y is the hardest natural substance, whereas Z is a good conductor of electricity. Identify Y and Z. 1
174. Why non-metals are electronegative? 1

Solve the following:

175. Calculate the molecular mass of $CaCO_3$. 2
176. Calculate the mass of oxygen used in the formation of water from 10.2 g of hydrogen. 2
[Atomic mass of H = 1 and O = 16]

Attempt the following:

177. A small piece of sodium is dropped into a beaker of water. Give two reasons why the reaction involves a chemical change. 2
178. Note the incorrectly balanced compound in each equation & rewrite the correct equation. 2
$Fe_2O_3 + 2H_2 \rightarrow 2Fe + 3H_2O$
179. Give reasons: Particles of matter possess energy called kinetic energy. 2
180. Give reason: Sodium, potassium and lithium are stored under oil. 2
181. Give reasons why the following are considered as chemical changes. 2
Sulphur when burnt in air evolves a gaseous acidic product.
182. Note the incorrectly balanced compound in each equation & rewrite the correct equation. 2
$N2 + 3H_2 \rightarrow NH_3$
183. Give reasons: Solids cannot be compressed, but gases are highly compressible. 2
184. Give reasons: Components in a mixture can be separated by physical methods only. 2
185. What is the difference between precipitation and neutralization reactions? What types of salts are prepared by neutralization and precipitation? 2
186. Note the incorrectly balanced compound in each equation & rewrite the correct equation. 2
$FeCl_3 + 3NH_4OH \rightarrow 2NH_4Cl + Fe(OH)_3$
187. Give reasons: On heating a sublimable solid, the molecules break free & escape from surface of the solid directly into vapour. 2
188. What is an ore? Name two ores from which aluminium is extracted by electrolysis. 2
189. Which property of water changes during its evaporation? 2
190. Note the incorrectly balanced compound in each equation & rewrite the correct equation. 2
$2Na + 3H_2O \rightarrow 2NaOH + H_2$
191. With reference to the liquid state of matter - answer the question: 2
State why the inter-particles attraction decreases to negligible.
192. Give reasons: Centrifugation can be used for separating an insoluble heavier solid, present in an - insoluble solid-liquid mixture. 2
193. Give two examples of oxidising agencies. 2

194. Note the incorrectly balanced compound in each equation & rewrite the correct equation. 2
$3NH_3 + H_2SO_4 \rightarrow (NH_4)_2SO_4$

195. Give reasons: Kinetic energy of molecules of gases is very large & of solids, the least. 2
196. Name an alloy of 2
(a) Copper in electrical appliances or household vessels.
(b) Zinc used in simple voltaic cells.
197. State, giving reasons, whether underlined substances have been oxidised or reduced, 2
(i) $PbO + CO \rightarrow Pb + CO_2$
(ii) $H_2S + Cl_2 \rightarrow 2HCl + S$
198. Note the incorrectly balanced compound in each equation & rewrite the correct equation. 2
$4P + 4O_2 \rightarrow 2P_2O_5$
199. On the basis of kinetic theory explain why, ammonium chloride sublims and goes from solid state directly into vapour state. 2
200. Give reasons: Centrifugation can be used for separating an insoluble heavier solid, present in an - insoluble solid-liquid mixture. 2
201. Give reasons why the following are considered as chemical changes. 2
An iron nail kept open in the atmosphere and it has become rusted.
202. Note the incorrectly balanced compound in each equation & rewrite the correct equation. 2
$ZnO + 3NaOH \rightarrow Na_2ZnO_2 + H_2O$
203. Give reasons: Particles of matter move more rapidly on application of heat. 2
204. All ores are minerals but all minerals are not ores. Justify. 2
205. Give a reason why – 2
Change of seasons is a periodic change while change of weather is a non-periodic change.
206. Note the incorrectly balanced compound in each equation & rewrite the correct equation. 2
$2Al + 2H_2SO_4 \rightarrow Al_2(SO_4)_3 + 3H_2$
207. Differentiate between the -two characteristics of matter-mass' & 'weight'. 2
208. You are given a hammer, a battery, a bulb, wires and a switch: 2
(a) How could you use them to distinguish between the samples of metals and non-metals?
(b) Assess the usefulness of these tests to distinguish between metals and non-metals?
209. Give a reason why – 2
Freezing of water is a reversible change while burning of a candle - an irreversible change.
210. Note the incorrectly balanced compound in each equation & rewrite the correct equation. 2
$PbO_2 + 4HCl \rightarrow PbCl_2 + H_2O + Cl_2$
211. Give reason: Aluminium is a highly reactive metal but still used for making cooking utensils. 2
212. Give the principles of 2
(a) Hydraulic washing (b) Froth floatation
213. Freezing of water to ice and evaporation of water are physical changes. Explain. 2
214. Note the incorrectly balanced compound in each equation & rewrite the correct equation. 2
$FeS + 2HCl \rightarrow 2FeCl_2 + H2S$
215. List three main differences between physical change and chemical change. 2
216. Give reason: Platinum, gold and silver are used to make jewellery. 2
217. What is a reversible change? 2
218. Which method of concentration of ore is preferred in the following cases? 2
(a) The ore has higher density particles mixed with a large bulk of low density impurities.
(b) The ore consists of copper sulphide intermixed with clay particles.
219. What are metalloids? Name the elements which are metalloids. 2
220. Give reasons: Zinc is considered an element, while zinc sulphide is considered a compound. 2
221. Show that there is no change in mass in a physical change. 2
222. Give reasons: The filter paper made into a cone & placed in a funnel for filtering out the solid particles in a solid-liquid mixture, should be moistened before placing. 2
223. Name the four main steps involved in the extraction of a metal from its ore. 2
224. Give reasons: Brass & bronze are examples of mixtures, while copper sulphate & lead nitrate are 2

examples of compounds.

225. What is a chemical reaction? 2
226. Explain: Water can be boiled in a paper cup. 2
227. Explain froth floatation process. 2
228. State a reason why zinc is used in 2
(a) Galvanization
(b) Dry cells
229. What is synthesis? To which kind of chemical reactions belongs to synthesis? Support your answer by an example. 2
230. 'An atom is the basic unit of an element'. Draw a diagram of an atom - divisible as seen today. 2
231. Respiration involves both the physical and chemical changes. Justify. 2
232. Name two noble metals and give two uses of each metal named by you. 2
233. Compare the energy changes involved during a physical and a chemical change. 2
234. Is change of state of matter - a physical or a chemical change. Give reasons. 2
235. State two reasons for alloying. 2
236. What is an ore? Name the two ores from which aluminum is extracted by electrolysis. 2
237. Give reasons why the following are considered as chemical changes. 2
A bright light is seen evolved when a strip of magnesium is heated.
238. Give reasons why burning of a candle is both a physical change and a chemical change. 2
239. When 2g of Mg is burnt in air, the weight of resultant white powder is much more than 2g. Why? 2
240. Find the odd one out and explain your choice (note: valency is not a criterian) 2
(i) Sulphur, Phosphorus, Carbon, Iodine
(ii) Copper, Lead, Zinc, Mercury.
241. Justify that a physical change can be reversed. 2
242. Explain: Why gun powder catches fire even in the absence of air? 2
243. What is a photochemical reaction? Give one example. 2

Attempt the following:

244. Explain with diagrams the process used to - separate the following substances from the given mixtures. 3
Potassium nitrate from a mixture of - potassium nitrate & potassium chlorate.
245. Identify the type of the following chemical reactions. 3
(a) $Cl_2 + 2KBr \rightarrow 2KCl + Br_2$
(b) $2HgO \rightarrow 2Hg + O_2$
(c) $PbO_2 + SO_2 \rightarrow PbSO_4$
246. Explain the term 'valency'. With reference to water & ammonia as compounds respectively, state the valency of oxygen & nitrogen. Magnesium [2, 8, 2] has valency 2. Give reasons. 3
247. Draw a labelled schematic diagram representing the terms (a) to (e) involved in the inter-conversion of matter. 3
248. Define the terms elements, compounds & mixtures with a view to show their basic difference. 3
249. Give reasons why the following are considered as chemical changes. 3
A piece of magnesium strip is dropped into a beaker containing dilute hydrochloric acid.
250. Balance the following equation: 3
$Fe_2O_3 + H_2 \rightarrow Fe + H_2O$
251. 'Inter-particle attraction between the atoms of gases is very weak'. State five properties of gases which correlate as a consequence of the weak inter-particle attraction between particles of gases. 3
252. Explain with diagrams the process used to - separate the following substances from the given mixtures. 3
Lead nitrate [soluble] from a mixture of - lead nitrate & water i.e. lead nitrate solution.
253. State three applications of electrolysis. 3
254. 1. Elements having valency of two. A: Br^{1-} 3
2. An anion B: Divalent
3. A gaseous non-metal C: Reactants
4. A cation. D: Ammonium

5. The term used for the substances which take part in the chemical reaction	E: Nitric oxide
6. The meaning of the symbol 'A' over the arrow in a chemical equation.	F: Nitrogen
7. The chemical name for nitrogen monoxide.	G: Zero
8. A radical containing nitrogen & hydrogen only	H: Nitrous oxide
9. The chemical name for dinitrogen oxide	I: Heat required
10. The valency of noble gases	J: K^{1+}

255. State in which of the following examples Le. a piece of wood, water, a light gas is the - 3
(a) Inter-particle space maximum
(b) Inter-particle attraction maximum
(c) Energy possessed by particles of matter, very large.

256. Represent with the help of a simple chart how matter is classified into pure or impure substances & further into elements, compounds & mixtures, with elements further segmented. 3

257. Complete the following chemical equations: 3
(a) $BaCl_2 + Na_2SO_4 \rightarrow$
(b) $FeCl_3 + NaOH \rightarrow$
(c) $Mg + H_2SO_4 \rightarrow$

258. Write the chemical formula of the following compounds with interacting ions and valencies (a) Potassium chloride (b) Sodium bromide (c) Potassium nitrate 3

259. Among the three states of matter - solids, liquids or gases, where the movement of atoms is minimum and the atoms stand about their own position? Give a reason for the same. 3

260. 3

List I	List II
1. Naphthalene from naphthalene	A: Separating funnel & sodium chloride.
2. Cream from milk.	B: Sublimation
3. Kerosene oil from kerosene oil & water.	C: Boiling
4. Lead nitrate from an aqueous solution of lead nitrate.	D: Centrifugation
5. Ammonia from an aqueous solution of ammonia.	E: Distillation

261. Which gases are removed from the air by 3
(a) Photosynthesis
(b) Respiration
(c) Combustion

262. Balance the following equation: 3
$C + H_2SO_4 \rightarrow CO_2 + H_2O + SO_2$

263. State which of the three states of matter i.e. solids, liquids or gases - have 3
(a) No definite volume
(b) A definite shape
(c) High density
(d) No free surfaces
(e) Particles - which diffuse very easily.

264. State any one method to separate the following mixtures- 3
(a) Two solid mixtures one of which directly changes into vapour on heating.
(b) Two solid mixtures one of which dissolves in a particular solvent and other does not.
(c) A solid-liquid mixture containing an insoluble solid in the liquid component.

265. State which of the following pertain to - chemical changes. 3

(a) Substance retains its identity (b) The change is permanent (c) No new substance is formed, (d) Is easily reversible (e) Produces one or more new substances by change in its composition, (f) The change is temporary (g) The composition and properties of the original substance are not altered.

266. Balance the following equation: 3
$ZnS + O_2 \rightarrow ZnO + SO_2$

267. Compare the properties of a typical metal and a non-metal on the basis of the following: 3
(a) Electronic configuration
(b) Nature of oxides
(c) Oxidizing or reducing action

268. Explain with diagrams the process used to - separate the following substances from the given mixtures. 3
Benzene from a mixture of - benzene [b.p. 80°Cl & toluene [b.p. 110°C].

269. State which of the following terms connected with change of state of matter i.e.- 3
(a) Melting (b) Vaporisation (c) Condensation (d) Freezing
- pertain to -
(i) Conversion of a liquid into a vapour or gas
(ii) Conversion of a liquid into a solid.
(iii) Conversion of a solid into a liquid on heating.

270. Balance the following equation: 3
$Pb_3O_4 \rightarrow PbO + O_2$

271. Balance the following equation: 3
$KHCO_3 \rightarrow K_2CO_3 + H_2O + CO_2$

272. Explain with diagrams the process used to - separate the following substances from the given mixtures. 3
Lead carbonate [insoluble] from a mixture of - lead carbonate & water.

273. Give reasons why the following are considered as chemical changes. 3
Copper carbonate on heat gives copper oxide and carbon dioxide.

274. Write the chemical formula of the following compounds with interacting ions and valencies (a) Potassium dichromate (b) Aluminium hydroxide (c) Magnesium nitride 3

275. Explain with diagrams the process used to - separate the following substances from the given mixtures. 3
Carbon tetrachloride from a mixture of - carbon tetrachloride [heavier component] & water.

276. Name the constituents of 3
(i) Duralumin
(ii) Solder
(iii) Bronze

277. Name the reducing agent in the following reactions: 3
(a) $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2 \uparrow$
(b) $ZnO + C \rightarrow Zn + CO \uparrow$
(c) $3CuO + 2NH_3 \rightarrow 3Cu + N_2 \uparrow + 3H_2O$.

278. Balance the following equation: 3
$Al + O_2 \rightarrow Al_2O_3$

279. Name an alloy of: 3
(a) Aluminium, used in aircraft construction.
(b) Lead, used in electrical work in joining metals.
(c) Copper, in electrical appliances or household vessels.

280. Write the equations for the reaction of zinc with each of the following: 3
(i) Sodium hydroxide solution
(ii) Dilute sulphuric acid
(iii) Copper sulphate solution.

281. List I List II 3
1. Burning of paper A: Physical change
2. Ringing of an electric bell B: Chemical change

3. Curdling of milk
4. An electric light is switched on
5. Melting of butter

282. What is meant by the term 'symbol'? Give examples. State a reason why - the symbol of calcium is 'Ca' & of copper is 'Cu'. 3

283. Balance the following equation: 3
$ZnO + NaOH \rightarrow Na_2ZnO_2 + H_2O$

284. Explain with diagrams the process used to - separate the following substances from the given mixtures. 3
Ammonium chloride from a mixture of - ammonium chloride & potassium chloride.

285. Select the chemical changes from the following list of changes - 3
(a) Crystallisation of a salt from its solution.
(b) Change of seasons.
(c) Preparation of carbon dioxide from calcium carbonate & dilute hydrochloric acid.

286. Balance the following equation: 3
$Al + H_2O \rightarrow Al_2O_3 + H_2$

287. Explain with diagrams the process used to - separate the following substances from the given mixtures. 3
Different dyes - in their liquid constituent ink.

288. With reference to elements - define the term 'molecule'. Give two examples each of a monoatomic, diatomic & polyatomic molecule. 3

289. Rewrite the following sentences after necessary corrections. 3
(a) Nitrogen supports combustion and oxygen controls combustion.
(b) During respiration we use nitrogen and give out hydrogen and oxygen.
(c) Atmospheric air contains more carbon dioxide than exhaled air.

290. What is known as chemical equation? How is it represented? Differentiate between a 'word equation' and a 'molecular equation' with a suitable example. 3

291. Balance the following equation: 3
$CaO + HCl \rightarrow CaCl_2 + H_2O$

292. (i) Name a metal which does not stick to glass. 3
(ii) Name a metal which is commonly used in thermite welding.
(iii) What is the nature of zinc oxide?

293. What is electroplating? In the electroplating of an article by nickel name the cathode, anode and metal ions present in the electrotype. 3

294. Balance the following equation: 3
$CuO + NH_3 \rightarrow Cu + H_2O + N_2$

295. Balance the following equation: 3
$Fe + Cl_2 \rightarrow FeCl_3$

296. State any one method to separate the following mixtures- 3
(a) A liquid-gas mixture containing a gas dissolved in a liquid component.
(b) A gas-gas mixture containing two gases with different densities.
(c) A mixture of different solid constituents
in a liquid constituent.

297. Give one example in each case: 3
(a) Combination reaction
(b) Decomposition reaction
(c) Substitution reaction.

298. Balance the following equation: 3
$Al + H_2SO_4 \rightarrow Al_2(SO4)_3 + H_2$

299. Balance the following equation: $Na_2O + H_2O \rightarrow NaOH$ 3

300. Fill in the blanks in the following list: 3

Common Name	Chemical Name	Formula
1. Cryolite		
2.	Calcium oxide	

301. What information is conveyed from the following chemical equation? 3
$2Mg + O_2 \rightarrow 2\ MgO$
Calculate the mass of magnesium oxide when 24g of magnesium reacts with 32g of oxygen. Also find the weight of oxygen left unused after the reaction.

302. Write the chemical formula of the following compounds with interacting ions and valencies (a) Potassium sulphate (b) Zinc hydroxide (c) Potassium permanganate 3

303. In construction work, why is the alloy of aluminium i.e., Duralumin is used rather than pure aluminium? 3

304. Explain with diagrams the process used to - separate the following substances from the given mixtures. 3
Iron from a mixture of - iron & copper

305. Write the chemical formula of the following compounds with interacting ions and valencies (a) Sodium zincate (b) Copper [II] oxide (c) Copper [I] sulphide 3

306. Balance the following equation: 3
$FeCl_3 + NaOH \rightarrow NaCl + Fe(OH)_3$

307. State any one method to separate the following mixtures- 3
(a) A solid-liquid mixture containing a soluble solid in the liquid component
(b) A liquid-liquid mixture containing two immiscible liquids having different densities
(c) A liquid-liquid mixture containing two miscible liquids having different boiling points.

308. Explain the term 'mixture'. Differentiate between homogenous &heterogeneous mixtures. State why brass is considered as a homogenous mixture while a mixture of iron & sulphur - heterogeneous. Give an example of two liquids which form (a) homogenous (b) heterogeneous -mixtures. 3

309. (a) Name the ore of zinc containing its sulphide. 3
(b) In the process of extracting zinc, the above mentioned ore is roasted. Write the equation for the reaction which takes place when the sulphide ore is roasted.
(c) Name the substance used to reduce the roasted ore. Write the equation for the reaction.

310. Balance the following equation: $K + H_2O \rightarrow KOH + H_2$ 3

311. Balance the following equation: 3
$H_2S + Cl_2 \rightarrow S + HCl$

312. Explain with diagrams the process used to - separate the following substances from the given mixtures. 3
Sulphur from a mixture of - sulphur & copper.

313. Balance the following equations: $P + O_2 \rightarrow P_2O_5$ 3

314. Differentiate between the terms - 'Ion' & 'radical' with suitable examples. 3

315. Balance the following equation: 3
$Fe_2O_3 + CO \rightarrow Fe + CO_2$

316. Compare the properties of iron [II] sulphide with iron- sulphur mixture, considering iron [II] sulphide as a compound & particles of iron & sulphur mixed together as an example of a mixture. 3

317. Balance the following equation: 3
$Pb_3O_4 + HCl \rightarrow PbCl_2 + H_2O + Cl_2$

318. Explain the term 'variable valency'. Copper having electronic configuration 2, 8,18,1 exhibits variable valency. Give a reason for the same & name the compound CuCl & $CuCl_2$. 3

319. Write the chemical formula of the following compounds with interacting ions and valencies (a) Calcium hydroxide (b) Calcium bicarbonate (c) Sodium bisulphate 3

320. Balance the following equation: 3
$NO + O_2 \rightarrow NO_2$

321. Balance the following equation: 3
$Fe + H_2O \rightarrow Fe_3O_4 + H_2$

Attempt the following:

322. Write the chemical formula of the following compounds with interacting ions and valencies (a) Iron [III] chloride (b) Iron [II] hydroxide (c) Iron [III] sulphide (d) Iron [III] oxide. 4

323. State the 'law of conservation of mass'. State the main points of Landolt's experiment for experimental evidence of the law. 4

324. Elements are broadly classified into metals & non-metals. State six general differences in physical properties of metals & non-metals.State two metals & two non-metals which contradict with the general physical properties -giving reasons.State one difference in property between metalloids & noble gases. 4

325. Differentiate between: (i) Cations and anions (ii) Cathode and anode (iii) Electrolytes and non-electrolytes (iv) Strong electrolytes and weak electrolytes 4

326. State the information provided by a chemical equation. Chemical equations suffer from a number of limitations. State the main limitations of a chemical equation. 4

327. State the main postulates of the kinetic theory with special reference to - 4
(a) Inter-particle space
(b) Inter-particle attraction
(c) Energy possessed by particles of matter.

328. 'The modern periodic table consists of elements arranged according to their increasing atomic numbers'. With reference to elements with atomic numbers 1 to 20 only in the periodic table - differentiate them into - metallic elements, metalloids, non-metals & noble gases. 4

329. Compare and contrast combustion of only carbon compounds and respiration. 4

330. What is melting point? Draw a neatly labelled diagram to show how to determine the melting point of a solid other than ice. 4

331. Matter in any state which is composed of small particles - molecules, atoms or ions. Differentiate these three terms. 4

332. (a) Bring out differences between metals and non-metals with respect to: 4
(i) arrangement of valence electrons
(ii) oxidising or reducing action
(iii) nature of oxide
(b) Explain the following terms
(i) Metallurgy
(ii) Ore

333. Change is the law of nature which occurs in everyday life. 4
State when a substance [i.e. matter] undergoes a kind of change.

334. Give three differences between oxidation and reduction. 4

335. Give four reasons why burning of a magnesium ribbon in air is considered a chemical change. 4

336. State five different characteristics of compounds. Give three differences between elements & compounds with relevant examples. 4

337. Match the items given in Column 'A' with those given in Column 'B' 4

Column-A	Column-B
1. Enzyme present in the saliva	(a) Exothermic process
2. Vessel used for electrolysis	(b) Anode
3. Catalyst used in preparation of vanaspati ghee	(c) Catalyst
4. Chemical reactions with the release of energy	(d) Cathode
5. Chemical reactions with the absorption of heat	(e) Nickel
6. Substance which accelerates the rate of reaction	(f) Voltameter
7. Negatively charged electrode	(g) Endothermic process
8. Positively charged electrode	(h) Amylase

338. Define the term 'compound'. 4
In the compound carbon dioxide-the elements carbon & oxygen are combined in a fixed ratio. Explain.

339. State whether the following changes are physical or chemical. 4
(a) Dissolving sugar in water (b) An iron nail gets rusted
(c) Freezing of water (d) Burning of paper

(e) Digestion of food (f) Making curd from milk

Attempt the following:

340. From the metals copper, iron, magnesium, sodium and zinc, select a different metal in each case which: 5
(i) Does not react with dilute hydrochloric acid?
(ii) Can form +2 and +3 ions.
(iii) Has a hydroxide that reacts with both acids and alkalies.
(iv) Does not react with cold water but reacts with steam when heated.
(v) Arrange the metals in decreasing order of reactivity.

341. Indicate whether the given changes are physical or chemical changes. 5
(a) Formation of dew
(b) Evaporation of water
(c) Baking of cake
(d) Glowing of a tube light
(e) Smoking of cigarette
(f) Ringing of an electric bell
(g) Ripening of fruit
(h) Breaking of a glass pane
(i) Clotting of blood
(j) Burning of petrol

342. Write balanced molecular equations for the following word equations: 5
(a) Calcium + oxygen → Calcium oxide
(b) Calcium + water → Calcium hydroxide + hydrogen
(c) Zinc + sulphuric acid → Zinc sulphate + hydrogen
(d) Lead sulphate + ammonium hydroxide → Ammonium sulphate + lead hydroxide
(e) Copper + nitric acid → Copper nitrate + water hydroxide
(f) Lead nitrate + sodium chloride → Sodium nitrate + lead chloride

343. With reference to inter-conversion of matter - on the basis of kinetic theory - explain in brief the conversion of: 5
(a) A solid into a liquid
(b) A liquid into vapour [or gas]
(c) Vapour [or gas] into a liquid
(d) A liquid into a solid
(With special reference to inter-particle space & inter-particle attraction at the different stages of conversion.)

344. Name the metals present in the following Ores: 5
(a) Haematite
(b) Bauxite
(c) Malachite
(d) Galena
(e) Cryolite

345. Describe the following terms: 5
(a) Combustion
(b) Combustible substances
(c) Non-combustible substances
(d) Inflammable substances
(e) Supporter of combustion.

346. State the valencies of the following metallic elements - 5
(a) Potassium (b) Sodium (c) Calcium (d) Magnesium (e) Zinc (f) Aluminium

(g) Chromium [write each symbol with the valency]

347. Complete the blanks with reference to inter conversion of matter on basis of kinetic theory-with the word 'increase', 'decreases', 'gain', 'lose' or 'overcome' in each case. 5

1. During melting of solids, the inter-particles space_____.
2. During vaporization, the liquid particles _____ energy.
3. During liquefaction, the particles _____ energy.
4. During solidification, the inter-particle space _____.
5. During sublimation the inter-particle attraction is _____.

348. Mention two uses of the following alloys: 5

(a) Bronze
(b) Solder
(c) German silver
(d) Magnelium
(e) Stainless steel

349. Select the chemical changes from the following list of changes - 5

(a) The carbon cycle.
(b) Occurrence of lightening,
(c) Breaking of glass.
(d) Butter turning rancid.
(e) Glowing of an electric bulb.

350. 5

1. Copper [I] sulphide	2. Potassium permanganate
3. Phosphoric acid	4. Copper [I] oxide
5. Carbonic acid	6. Aluminium sulphide
1. Iron [II] oxide	8. Iron [III] sulphide
9. Iron [II] sulphate	10. Sodium zincate
11. Nitrous oxide	12. Aluminium sulphate
13. Magnesium nitride	14. Iron [III] sulphate
15. Copper [II] oxide	16. Iron [III] oxide
17. Nitric oxide	18. Copper [II] sulphide
19. Iron [II] sulphide	20. Magnesium nitrate

A. $KMnO_4$	B. Mg_3N_2
C. $Mg(NO_3)_2$	D. $Al_2(SO_4)_3$
E. Na_2ZnO_2	F. N_2O
G. H2CO	H. Al_2S_3
I. NO	J. FeS
K. Fe_2S_3	L. H_3PO_4
M. Cu_2S	N. CuS
O. Fe_2O_3	P. FeO
Q. $FeSO_4$	R. $Fe_2(SO_4)_3$
S. CuO	T. Cu_2O

351. What is inter-conversion of matter. Give the meaning of the terms involved in inter-conversion of matter - 5

(a) Melting (b) Vaporisation
(c) Liquefaction or condensation,
(d) Solidification or freezing
(e) Sublimation.

352. From the list of characteristics given below, select the five which are relevant to non-metals and their compounds: 5

A — Ductile
B — Conduct Electricity
C —Brittle

D —Acidic oxides
E —Basic oxides
F —Discharged at anode
G — Discharged at cathode
H — Ionic chlorides
I — Covalent chlorides
J — Reaction with dilute sulphuric acid yields hydrogen
K—1, 2 or 3 valence electrons
L—5, 6 or 7 valence electrons
(Write the five letter corresponding to the correct characteristics)

353. Give a reason why - 5
(a) Heating a platinum wire is a reversible change but, heating a magnesium wire is an irreversible change.
(b) Addition of zinc nitrate to water is a physical change but, addition of zinc to dilute nitric acid is a chemical change.
(c) Rusting of iron is a chemical change but, magnetization of iron is a physical change.

354. What is known as balanced equation? Write with a relevant example. 5
Give a reason why an equation is balanced with reference to the law of conservation of matter.

355. Select the correct answer from A, B, C, D & E for each statement given below: 5
A: Solid B: Vaporization C: Ion D: Gases E: Heat
1. An atom or group of atoms - having a resultant charge.
2. The state of matter which has - least density & no free surfaces.
3. In Landolt's experiment - the form in which the chemical energy stored up in the reactants - is released.
4. The process of change of a liquid into vapour, [gas] on heating.
5. The state of matter, where the inter-particle attraction between particles is maximum.

356. Select the correct answer from A, B, C, D & E for each statement given below: 5
A: Gunpowder B: Iodine C: Boron D: Helium E: Bromine
1. A diatomic molecule
2. A metalloid.
3. A non-metal which is lustrous.
4. A mixture consisting of elements & a compound.
5. A noble gas.

357. Select the chemical changes from the following list of changes - 5
(a) Vaporisation of water into water vapour.
(b) Boiling of milk.
(c) Respiration in mammals.
(d) Rotting of eggs.
(e) Drying of a fruit.

358. State which of the following ions or radicals given below of non-metallic elements exhibit valency 5
1^-, 2^- & 3^-.
(a) Chloride (b) Bromide (c) Iodide (d) Nitrate (e) Hydroxide (f) Bicarbonate (g) Bisulphite (h) Bisulphate (i) Aluminate (j) Permanganate (k) Oxide (1) Sulphide (m) Sulphite (n) Sulphate (o) Carbonate (p) Dichromate (q) Zincate (r) Plumbite (s) Phosphate, (t) Nitride [write each ion or radical with the correct valency]

359. Match the items given in Column 'A' with those given in Column 'B' 5

Column-A	Column-B
1. Alloy used in making machine parts.	(a) Bauxite
2. Deficiency of non-metal causes goitre.	(b) Steel
3. Non-metal used in manufacture of DDT.	(c) Iodine
4. Ore of copper.	(d) Copper pyrites
5. Alloy of mercury.	(e) Duralumin
6. Ore of iron.	(f) White phosphorus

7. Alloy of iron with carbon. (g) Chlorine
8. Alloy used in aeroplane parts. (h) Amalgam
9. Ore of aluminium. (i) Haematite
10. Rat poison. (j) Magnelium

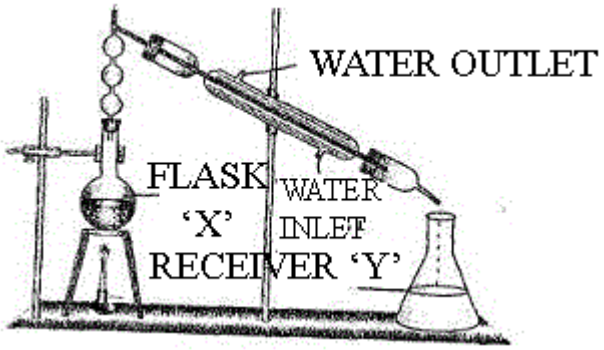
360. Write balanced chemical equations for the following: 5
(a) The reduction of metallic oxide inside the blast furnace
(b) Formation of slag inside the blast furnace
(c) Reduction of ferric oxide by aluminium powder
(d) Heating of iron with sulphur
(e) Zinc is placed in a ferrous sulphate solution.

361. Potassium chloride is added to water and stirred. A salt solution is obtained which is then boiled leaving behind a residue. 5
(a) Is the above change physical or chemical?
(b) Name the residue which remains behind after the salt solution is boiled.
(c) Is the change reversible or not irreversible?
(d) Are the composition and properties of the original substance altered?
(e) Give a reason why the above experimentation would not be possible, if calcium carbonate is taken, in place of potassium chloride.

362. Certain metals exhibit variable valencies. State the variable valency of the following metals - 5
(a) Copper (b) Silver (c) Mercury (d) Iron (e) tin (f) Lead
[write each symbol with the variable valency]

363. State which of the following 1 to 5 pertain to – 5
A: Physical Change B: Chemical change:
1. Sublimation.
2. Fermentation.
3. Liquefaction or condensation.
4. Magnetization.
5. Respiration.

364. The diagram represents fractional distillation for separation of mixtures. Answer the following: 5



1. Can two immiscible liquids be separated by this process?
2. Separation of liquids by this process is based on which physical property?
3. If methyl alcohol & water are to be separated, which liquid would remain in flask 'X' after condensation?
4. Give a reason for the above answer.
5. State the purpose of the fractionating column in the apparatus.

365. Match the properties and uses of alloys in List 1 with the appropriate answer from List 2. 5

List 1	List 2
(i) The alloy contains Cu and Zn, is hard, silvery and is used in decorative articles.	A. Duralumin
(ii) It is stronger than Aluminium, light and isused in making light tools.	B. Brass
(iii) It is lustrous, hard, corrosion resistant and used in surgical instruments.	C. Bronze
(iv) Tin lowers the melting point of the alloy and is used for soldering purpose.	D. Stainless steel
(v) The alloy is hard, brittle, takes up polish and is used for making statues.	E. Solder

366. A list of some elements is given below: 5

Copper, iron, oxygen, aluminium, sulphur, silver and mercury.

Using each of the elements mentioned above, only once, name the elements which describe the properties stated below:

(a) The most abundant element on the earth.

(b) An element which was expensive about a hundred years ago is now cheaper.

(c) An element which was used in making a strong acid.

(d) An element whose alloy was first known to human beings.

(e) An element which is used as an important structural material.

-------- **All the Best** --------