

Exercises

101. The Poisonous nature of Carbon monoxide (CO) is due to its **[NDA-I 2018]**
(a) insolubility in water
(b) ability to form a complex with haemoglobin
(c) ability to reduce some metal oxides
(d) property of having one sigma bond
102. Which one of the following is the purest form of Carbon? **[NDA-I 2018]**
(a) Charcoal (b) Coke
(c) Fullerene (d) Carbon black
103. Which one of the following properties is NOT true for graphite? **[NDA-I 2018]**
(a) Hybridisation of each carbon atom of sp^3
(b) Hybridisation of each carbon atom is sp^2
(c) Electrons are delocalized over the whole sheet of atoms
(d) Each layer is composed of hexagonal rings.
104. How is carbon black obtained? **[NDA-I 2018]**
(a) By heating wood at high temperature in absence of air
(b) By heating coal at high temperature in absence of air
(c) By burning hydrocarbons in a limited supply of air
(d) By heating coal at high temperature in presence of air
105. Which one of the following metals is alloyed with sodium to transfer heat in a nuclear reactor? **[NDA-I 2018]**
(a) Potassium (b) Calcium
(c) Magnesium (d) Strontium
106. Which one of the following alkali metals has lowest melting point? **[NDA-I 2018]**
(a) Sodium (b) Potassium
(c) Rubidium (d) Caesium
107. Which one of the following is the number of water molecules that share with two formula unit $CaSO_4$ in plaster of Paris? **[NDA-I 2018]**
(a) One (b) Two
(c) Five (d) Ten
108. Which one of the following is NOT true for bleaching powder? **[NDA-I 2018]**
(a) It is used as a reducing agent in chemical industries
(b) It is used for bleaching wood pulp in paper factories
(c) It is used for disinfecting drinking water
(d) It is used for bleaching linen in textile industry
109. Which one of the following is the chemical formula of Washing Soda? **[NDA-I 2018]**
(a) $NaHCO_3$ (b) $Na_2CO_3 \cdot 10H_2O$
(c) $Na_2CO_3 \cdot 5H_2O$ (d) $NaOH$
110. Brine is an aqueous solution of **[NDA-I 2018]**
(a) $NaCl$ (b) $NaOH$
(c) $NaHCO_3$ (d) Na_2CO_3
111. Which one of the following gives the highest amount of hydrogen ions (H^+)? **[NDA-I 2018]**
(a) Sodium hydroxide solution
(b) Milk of magnesia
(c) Lemon juice
(d) Gastric juice
112. Which of the following properties is true for a tooth paste? **[NDA-I 2018]**
(a) It is acidic
(b) It is neutral
(c) It is basic

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- (d) It is made up of Calcium phosphate, the material of tooth enamel
113. Which one of the following is a chemical change? **[NDA-I 2018]**
- Cutting of hair
 - Graying of hair naturally
 - Swelling of resin in water
 - Cutting of fruit
114. The species that has the same number of electrons $^{35}_{16}\text{Cl}$ is **[NDA-II 2017]**
- $^{35}_{16}\text{S}$
 - $^{34}_{16}\text{S}^+$
 - $^{40}_{18}\text{Ar}^+$
 - $^{35}_{16}\text{S}^{2-}$
115. The ionization energy of hydrogen atom in the ground state is comodo **[NDA-II 2017]**
- 13.6 MeV
 - 13.6 eV
 - 13.6 Joule
 - Zero
116. Consider the following reaction:
 $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$
 Which of the following about the reaction given above is/are correct? **[NDA-II 2017]**
- Carbon is oxidized.
 - Hydrogen is oxidized
 - Hydrogen is reduced
 - Carbon is reduced. Select the correct answer using
- 1 only
 - 1 and 2 only
 - 2 and 3 only
 - 2 and 4 only
117. How much CO , is produced on heating of 1 kg of carbon? **[NDA-II 2017]**
- $\frac{11}{3}$ kg
 - $\frac{3}{11}$ kg
 - $\frac{4}{3}$ kg
 - $\frac{3}{4}$ kg
118. Zinc is used to protect iron from corrosion because zinc is **[NDA-II 2017]**
- more electropositive than iron
 - cheaper than iron
 - a bluish white metal
 - a good conductor of heat and electricity
119. The proposition equal volumes of different gases contain equal numbers of molecules at the same temperature and pressure is known as **[NDA-II 2017]**
- Avogadro's hypothesis
 - Gay-Lussac's hypothesis
 - Planck's hypothesis
 - Kirchhoff's theory
120. Why is potassium permanganate used for purifying drinking water? **[NDA-II 2017]**
- It kills germs
 - It dissolves the impurities
 - It is a reducing agent
 - It is a oxidizing agent
121. Which one among the following chemical is used as washing soda? **[NDA-II 2017]**
- Calcium carbonate
 - Calcium bicarbonate
 - Sodium carbonate
 - Sodium bicarbonate
122. The compound $\text{C}_6\text{H}_{12}\text{O}_4$ contains **[NDA-II 2017]**
- 22 atoms per mole
 - twice the mass percent of H as compared to the mass percent of C
 - six times the mass percent of C as compared to the mass percent of H
 - thrice the mass percent of H as compared to the mass percent of O
123. The principal use of hydrofluoric acid is **[NDA-II 2017]**
- in etching glass
 - as a bleaching agent
 - as an extremely strong oxidizing agent
 - in the preparation of strong organic flourine compounds
124. Which compound, when dissolved in water, conducts electricity and forms a basic solution? **[NDA-II 2017]**
- HCl
 - CH_3COOH
 - CH_3OH
 - NaOH
125. The desirable range of pH for drinking water is **[NDA-II 2017]**
- 6.5 to 8.5
 - 5.0 to 6.5
 - 6.5 to 7.0
 - 7.0 to 8.5
126. Which one of the following is a cause of acid rains? **[NDA-II 2017]**
- Ozone
 - Ammonia
 - Sulphur dioxide
 - Carbon monoxide
127. Radon is **[NDA-I 2017]**
- an inert gas
 - an artificial fibre
 - an explosive
 - a metal
128. Match List I with List II and select the correct answer using the code given below the Lists: **[NDA-I 2017]**
- | List I (Noble gas) | List II (Use) |
|---------------------------|--|
| A. Argon | 1. In lights for advertising display |
| B. Neon | 2. Airport landing lights and in lighthouses |

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- C. Krypton
D. Xenon
3. Light in photographer's flash gun
4. In tungsten filament to last longer

Codes:

- | | | | | | | | |
|-------|---|---|---|-------|---|---|---|
| A | B | C | D | A | B | C | D |
| (a) 3 | 1 | 2 | 4 | (b) 3 | 2 | 1 | 4 |
| (c) 4 | 2 | 1 | 3 | (d) 4 | 1 | 2 | 3 |

129. The valency of an element depends upon the [NDA-I 2017]
(a) total number of protons in an atom
(b) mass number of an atom
(c) total number of neutrons in an atom
(d) total number of electrons in the outer most shell of an atom
130. 20 g of common salt is dissolved in 180 g of water. What is the mass percentage of the salt in the solution? [NDA-I 2017]
(a) 5% (b) 9%
(c) 10% (d) 15%
131. A homogeneous mixture contains two liquids. How are they separated? [NDA-I 2017]
(a) By filtration (b) By distillation
(c) By evaporation (d) By condensation
132. Rutherford's alpha-particle scattering experiment was responsible for the discovery of [NDA-I 2017]
(a) Electron (b) Proton
(c) Nucleus (d) Helium
133. Which one of the following elements is used in pencil-lead? [NDA-I 2017]
(a) Zinc (b) Lead
(c) Carbon (Graphite) (d) Tin
134. Which one of the following elements forms highest number of compounds? [NDA-I 2017]
(a) Oxygen (b) Hydrogen
(c) Chlorine (d) Carbon
135. Molecules of which of the following has cage like structure?
1. Diamond
2. Graphite
3. Fullerenes
Select the correct answer using the code given below:
(a) 1, 2 and 3 (b) 2 and 3 only
(c) 2 only (d) 3 only
136. Which one of the following elements corrodes rapidly? [NDA-I 2017]
(a) Aluminium (b) Iron
(c) Zinc (d) Silver
137. Which one of the following elements is least reactive with water? [NDA-I 2017]
(a) Lithium (b) Sodium
(c) Potassium (d) Cesium
138. Temporary hardness in water is due to which one of the following of Calcium and Magnesium? [NDA-I 2017]
(a) Hydrogen carbonates (b) Carbonates
(c) Chlorides (d) Sulphates
139. The chemical name of baking soda is [NDA-I 2017]
(a) Na_2CO_3 (b) NaHCO_3
(c) CaCO_3 (d) NaOH
140. Glass is a [NDA-I 2017]
(a) liquid
(b) colloid
(c) non-crystalline amorphous solid
(d) crystalline solid
141. What is the number of mole(s) of $\text{H}_2(\text{g})$ required to saturate one mole benzene? [NDA-I 2016]
(a) 1 (c) 3
(b) 2 (d) 4
142. An atom of carbon has 6 protons. Its mass number is 12. How many neutrons are present in an atom of carbon? [NDA-I 2016]
(a) 12 (c) 10
(b) 6 (d) 14
143. Which one of the following is not a chemical change? [NDA-I 2016]
(a) Ripening of fruits (c) Freezing of water
(b) Curdling of milk (d) Digestion of food
144. Matter around us can exist in three different states, namely, solid, liquid and gas. The correct order of their compressibility is [NDA-I 2016]
(a) Liquid < Gas < Solid
(b) Solid < Liquid < Gas
(c) Gas < Liquid < Solid
(d) Solid < Gas < Liquid
145. Which one of the following oxides dissolves in water? [NDA-I 2016]
(a) CuO (b) Al_2O_3
(c) Fe_2O_3 (d) Na_2O
146. Which one of the following carbon compounds will not give a sooty flame? [NDA-I 2016]
(a) Benzene (b) Hexane
(c) Naphthalene (d) Anthracene
147. Which one of the following is water gas?
(a) Mixture of carbon monoxide and hydrogen
(b) Mixture of carbon monoxide and nitrogen
(c) Mixture of carbon dioxide and water vapour
(d) Mixture of carbon monoxide and water vapour

148. Which one of the following is the chemical name for baking soda? [NDA-I 2016]
 (a) Sodium bicarbonate (Sodium hydrogen carbonate)
 (b) Sodium carbonate
 (c) Potassium bicarbonate (Potassium hydrogen carbonate)
 (d) Potassium carbonate
149. Which one of the following oxides of nitrogen is known as anhydride of nitric acid? [NDA-I 2016]
 (a) N_2O (b) N_2O_3
 (c) NO_2 (d) N_2O_5
150. Which of the commonly used household item(s) release Bisphenol A(BPA) which is an endocrine disruptor and bad for human health? [NDA-I 2016]
 1. Steel utensils
 2. Plastic coffee mugs
 3. Aluminium utensils
 4. Plastic water storage bottles
 Select the correct answer using the code given below:
 (a) 1 only (b) 1 and 2 only
 (c) 2 and 4 only (d) 1, 2 and 3 only
151. The phosphorus used in the manufacture of safety matches is [NDA-I 2016]
 (a) Red phosphorus
 (b) Blank phosphorus
 (c) White phosphorus
 (d) Scarlet phosphorus
152. The following item consist of two statements. Statement I and Statement II. Examine these two statements carefully and selet the answer to these items using the code given below.
Statement I: Petroleum is a mixture of many different hydrocarbons of different densities.
Statement II: The grade of petroleum depends mainly on the relative proportion of the different hydrocarbons.
 (a) Both the Statements are individually true and Statement II is the correct explanation of Statement I.
 (b) Both the Statements are individually true but Statement II is not the correct explanation of Statement I.
 (c) Statement I is true but Statement II is false.
 (d) Statement I is false but Statement II is true.
153. Which one of the following elements will not react with dilute HCl to produce H_2 ? [NDA-I 2016]
 (a) Hg (b) Al
 (c) Mg (d) Fe
154. Suppose you have four test tubes labelled as 'A', 'B', 'C' and 'D'. 'A' contains plain water, 'B' contains solution of an alkali, 'C' contains solution of an acid, and 'D' contains solution of sodium chloride. Which one of these solutions will turn phenolphthalein solution pink? [NDA-I 2016]
 (a) Solution 'A' (b) Solution 'B'
 (c) Solution 'C' (d) Solution 'D'
155. Which one of the following is a reduction reaction? [NDA-I 2016]
 (a) $2Mg(s) + O_2(g) \rightarrow 2MgO(s)$
 (b) $S(s) + O_2(g) \rightarrow SO_2(g)$
 (c) $2HgO(s) \xrightarrow{\text{Heat}} 2Hg(l) + O_2(g)$
 (d) $Mg(s) + S(s) \rightarrow MgS(s)$
156. Which one of the following statements is correct? [NDA-II 2015]
 (a) Rutherford's alpha-particle scattering experiment led to the discovery of electron
 (b) J J Thomson suggested that the nucleus of an atom contains protons
 (c) The atomic number of an element is the same as the number of protons in the nucleus of its atom
 (d) The mass number of an atom is equal to the number of electrons in its shells
157. The symbol of the element 'Tungsten' is:
 (a) Ta (b) W
 (c) Tl (d) Tc
158. Match List I with List II and select the correct answer using the code given below the Lists: [NDA-II 2015]
- | List I (Element) | List II (Use) |
|------------------|--|
| A. L | 1. Time keeper in atomic clocks |
| B. Na | 2. Batteries |
| C. K | 3. Transfer of nerve impulses |
| D. Cs | 4. Control of the water content in the blood |
- Codes:**
- | | |
|-------------|-------------|
| A B C D | A B C D |
| (a) 2 3 4 1 | (b) 1 2 3 4 |
| (c) 2 4 3 1 | (d) 1 3 2 4 |
159. To weld metals together, high temperature is required. Such a high temperature is obtained by burning: [NDA-II 2015]
 (a) Acetylene in oxygen
 (b) LPG in oxygen
 (c) Methane in oxygen
 (d) Acetylene in nitrogen
160. Which of the following statements regarding heavy water are correct? [NDA-II 2015]
 1. It is extensively used as a moderator in nuclear reactors

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2. It cannot be used in exchange reaction to study reaction mechanism
3. Viscosity of heavy water is relatively smaller than that of ordinary water
4. The dielectric constant of heavy water is smaller than that of ordinary water
- Select the correct answer using the code given below:
- (a) 1 and 2 (b) 2 and 3
(c) 3 and 4 (d) 1 and 4
161. Ammonia (NH₃) obtained from different sources always has same proportion of Nitrogen and Hydrogen. It proves idide to the validity of law of: **[NDA-II 2015]**
- (a) Reciprocal proportion
(b) Constant proportion
(c) Multiple proportion
(d) None of the above
162. Consider the following reaction: **[NDA-II 2015]**
- $$\text{CH}_4(\text{g}) + \text{H}_2\text{O} \xrightarrow{1270\text{K}} \text{CO}(\text{g}) + 3\text{H}_2(\text{g})$$
- In the reaction given above, the mixture of CO and H₂ is:
- (a) natural gas (b) water gas
(c) producer gas (d) industrial gas
163. Graphite is inert to most of the chemicals and remains intact in electrolytic cells. **[NDA-II 2015]**
- (a) undergoes sp² hybridization and forms three sigma bonds with three neighbouring carbon atoms
(b) undergoes sp³ hybridization
(c) is tetrahedrally bonded
(d) is free from van der Waals force
164. The alkali metals have relatively low melting point. Which one of the following alkali metals is expected to have the highest melting point? **[NDA-II 2015]**
- (a) Li (b) Na
(c) K (d) Rb
165. Which one of the following is useful in paper manufacturing industry? **[NDA-II 2015]**
- (a) Fibrous plants
(b) Orchids
(c) Non-flowering plants
(d) Plants growing in high altitude
166. White Phosphorus glows in the dark due to: **[NDA-II 2015]**
- (a) amorphous character
(b) slow oxidation
(c) high ignition temperature
(d) good conducting property of electricity
167. The main constituent of Vinegar is: **[NDA-II 2015]**
- (a) Acetic acid (b) Ascorbic acid
(c) Citric acid (d) Tartaric acid
168. Addition of gypsum to cement: **[NDA-II 2015]**
- (a) reduces setting time to cement
(b) produces very light colour cement
(c) increases setting time of cement
(d) shining surface is formed
169. Boric acid is an acid because its molecule: **[NDA-II 2015]**
- (a) accepts OH from water releasing proton
(b) combines with proton from water molecule
(c) contains replaceable H⁻ ion
(d) gives up a proton
170. Why is Graphite used in electrolytic cells? **[NDA-I 2015]**
- (a) Graphite is soft and can be easily moulded into electrodes
(b) Graphite is made of layers of carbon atoms which can slide
(c) Graphite is a good conductor of electricity
(d) Graphite is a much better conductor of heat and electricity than diamond. This is due to the fact that each carbon atom in graphite:
171. In the reaction ZnO + C → Zn + CO, 'C' acts as **[NDA-I 2015]**
- (a) an acid (b) a base
(c) an oxidising agent (d) a reducing agent
- DIRECTIONS (Qs. 172-173):** The following 2 (Two) items consist of two statements, Statement I and Statement II. You are to examine these two statements carefully and select the answers to these items using the code given below:
- (a) Both the statements are individually true and Statement II is the correct explanation of Statement I.
(b) Both the statements are individually true but Statement II is not the correct explanation of Statement I.
(c) Statement I is true but Statement II is false.
(d) Statement I is true but Statement II is true.
172. **Statement I:** Colour of nitrogen dioxide changes to colourless at low temperature.
Statement II: At low temperature Nitrogen tetroxide (N₂O₄) is formed which is colourless. **[NDA-I 2015]**
173. **Statement I:** Oxygen gas is easily produced at a faster rate by heating a mixture of potassium chlorate and manganese dioxide than heating potassium chlorate alone.
Statement II: Manganese dioxide acts as a negative catalyst. **[NDA-I 2015]**

174. Permanent hardness of water is due to the presence of
[NDA-I 2015]
- sulphates of sodium and potassium
 - sulphates of magnesium and calcium
 - carbonates of sodium and magnesium
 - bicarbonates of magnesium and calcium
175. Washing Soda is the common name for [NDA-I 2015]
- Calcium Carbonate
 - Magnesium Carbonate
 - Sodium Carbonate
 - Potassium Carbonate
176. The chemical used as a fixer/developer in photography is
[NDA-I 2015]
- Sodium sulphate
 - Sodium sulphide
 - Sodium thiosulphate
 - Sodium sulphite
177. Which one among the following is used in making gunpowder ?
[NDA-I 2015]
- Magnesium sulphate
 - Potassium nitrate
 - Sodium stearate
 - Calcium sulphate
178. **Statement I:** The granules of modern gunpowder (also called black powder) are typically coated with Graphite.
Statement II: Graphite prevents the build-up of electrostatic charge.
[NDA-I 2015]
- Both the statements are individually true and Statement II is the correct explanation of Statement I.
 - Both the statements are individually true but Statement II is not the correct explanation of Statement I.
 - Statement I is true but Statement II is false.
 - Statement I is true but Statement II is true.
179. The cleaning action of soap and detergent in water is due to the formation of
[NDA-I 2015]
- Micelle
 - Salt
 - Base
 - Acid
180. Match List I with List II and select the correct answer using the code given below the Lists: [NDA-I 2015]
- | List I
(Compound) | List II
(Nature) |
|----------------------|---------------------|
| A. Sodium hydroxide | 1. Strong acid |
| B. Calcium oxide | 2. Alkali |
| C. Acetic acid | 3. Weak acid |
| D. Hydrochloric acid | 4. Base |
- Codes:**
- | A B C D | A B C D |
|-------------|-------------|
| (a) 2 4 3 1 | (b) 2 4 1 3 |
| (c) 1 4 3 2 | (d) 1 3 4 2 |
181. If the reaction of 1.0 mol $\text{NH}_3(\text{g})$ and 1.0 mol $\text{O}_2(\text{g})$ $4\text{NH}_3(\text{g}) + 5\text{O}_2(\text{g}) \rightarrow 4\text{NO}(\text{g}) + \text{H}_2\text{O}(\text{l})$ is carried to completion, then
[NDA-I 2015]
- all the $\text{O}_2(\text{g})$ is consumed
 - 4.0 mol $\text{NO}(\text{g})$ is produced
 - 1.5 mol $\text{H}_2\text{O}(\text{l})$ is produced
 - all the $\text{NH}_3(\text{g})$ is consumed
182. Which one among the following contains the most neutrons?
[NDA-II 2014]
- $^{59}_{26}\text{Fe}$
 - $^{61}_{29}\text{Cu}$
 - $^{61}_{30}\text{Zn}$
 - $^{60}_{30}\text{Zn}^{2+}$
183. A compound X_2O_3 contains 31.58% oxygen by weight. The atomic mass of X is
[NDA-II 2014]
- 34.66 g mol^{-1}
 - 45.01 g mol^{-1}
 - 52.00 g mol^{-1}
 - 104.00 g mol^{-1}
184. A sample of carbon dioxide that undergoes a transformation from solid to liquid and then to gas would undergo
[NDA-II 2014]
- a change in mass
 - a change in density
 - a change in composition
 - no change in physical properties
185. A monatomic species that has 18 electrons and a net charge of 2 has
[NDA-II 2014]
- the same number of electrons as a neutral argon atom
 - more protons than electrons
 - 2 unpaired electrons
 - 20 protons
186. How many grams of MgCO_3 contain 24.00 g of oxygen? (The molar mass of MgCO_3 is 84.30 g mol^{-1})
[NDA-II 2014]
- 42.15 g
 - 84.30 g
 - 126.00 g
 - 154.00 g
187. Consider the following reaction: [NDA-II 2014]
- $$x\text{As}_2\text{S}_3 + y\text{O}_2 \rightarrow z\text{As}_2\text{O}_3 + w\text{SO}_2$$
- What is y (the coefficient for O_2) when this equation is balanced using whole number coefficients?
- 5
 - 7
 - 9
 - 11
188. The very high heat of vaporization of water is mainly a result of
[NDA-II 2014]
- van der Waals forces
 - covalent bonds
 - interionic attraction
 - hydrogen bonding
189. Turpentine oil in paints is used as a [NDA-II 2014]
- pigment
 - film-forming material
 - thinner
 - drier

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190. A sample of gas is to be identified by means of its behaviour in the presence of a glowing splint. Which of the following gases will neither itself burn nor cause the splint to burn? **[NDA-II 2014]**
 (a) Oxygen (b) Nitrogen
 (c) Hydrogen (d) Methane
191. Which one of the following substances is most likely to be used as soap? **[NDA-II 2014]**
 (a) $\text{CH}_3(\text{CH}_2)_2\text{COOCH}_3$
 (b) $\text{CH}_3(\text{CH}_2)_5\text{O}(\text{CH}_2)_5\text{CH}_3$
 (c) $\text{CH}_3(\text{CH}_2)_{12}\text{COONa}$
 (d) $\text{CH}_3(\text{CH}_2)_{12}\text{CHCl}_2$
192. Which of the following element combinations will form ionic compounds? **[NDA-II 2014]**
 1. Ca ($Z = 20$) and Ti ($Z = 22$)
 2. Si ($Z = 14$) and Br ($Z = 35$)
 3. Mg ($Z = 12$) and Cl ($Z = 17$)
 Select the correct answer using the code given below.
 (a) 2 only (b) 3 only
 (c) 2 and 3 only (d) 1, 2 and 3
193. The burning sensation of bee sting can be stopped by rubbing the affected area with soap. This is because **[NDA-II 2014]**
 (a) a bee sting is acidic and soap, an alkali, neutralizes it
 (b) a bee sting is alkaline and soap, an acid, neutralizes it
 (c) soap cleans the affected area and removes the sting
 (d) soap acts as an anesthetic and dulls the sensation
194. What is the oxidizing agent in the following equation?
 $\text{HASO}_2(\text{aq}) + \text{Sn}^{2+}(\text{aq}) + \text{H}^+(\text{aq}) \rightarrow \text{As}(\text{s}) + \text{Sn}^{4+}(\text{aq}) + \text{H}_2\text{O}(\text{l})$ **[NDA-II 2014]**
 (a) $\text{HASO}_2(\text{aq})$ (b) $\text{Sn}^{2+}(\text{aq})$
 (c) $\text{H}^+(\text{aq})$ (d) $\text{Sn}^{4+}(\text{aq})$
195. The mass number of an atom is determined by **[NDA-I 2014]**
 (a) adding the number of neutrons and number of electrons
 (b) adding the number of protons and number of biphoria electrons
 (c) the number of protons only
 (d) adding the number of neutrons and number of electrons
196. The pressure of an ideal gas undergoing isothermal change is increased by 10%. The volume of the gas must decrease by about **[NDA-I 2014]**
 (a) 0.1% (b) 9%
 (c) 10% (d) 0.9%
197. The most of the mass of the atom can be found in **[NDA-I 2014]**
 (a) electrons (b) charges
 (c) nucleus (d) electron
198. Which of the following statements about hydrogen is are correct? **[NDA-I 2014]**
 1. Hydrogen has three isotopes of which protium is the most common.
 2. Hydrogen ion (H^+) exists freely in solution.
 3. Dihydrogen, H_2 , acts as a reducing agent. Select the correct answer using the code given below.
 (a) 1, 2 and 3 (b) 1 only
 (c) 1 and 3 only (d) 3 only
199. Which of the following pairs represents isoelectric ions? **[NDA-I 2014]**
 (a) Na^+ , K^+ (b) K^+ , Mg^{2+}
 (c) Mg^{2+} , Ca^{2+} (d) Ca^{2+} , S^{2-}
200. Which one of the following is the correct electronic configuration of children? **[NDA-I 2014]**
 (a) 2,7,8 (b) 2,8,7
 (c) 2,8,8 (d) 7,8,2
201. The number of valence electrons in the O^{2-} ion is **[NDA-I 2014]**
 (a) 4 (b) 6
 (c) 8 (d) 10
202. Which of the following statements is correct? **[NDA-I 2014]**
 (a) Fullerenes have only six-membered carbon rings
 (b) Fullerenes are cage-like molecules
 (c) Diamond is thermodynamically the most stable allotrope of carbon
 (d) Graphite is slippery and hard, and is therefore used as a dry lubricant in machines
203. The most stable form of carbon is **[NDA-I 2014]**
 (a) diamond (b) graphite
 (c) fullerene (d) coal
204. Which of the following is correct regarding the reaction of fluorine with water? **[NDA-I 2014]**
 $2\text{F}_2(\text{g}) + 2\text{H}_2\text{O}(\text{l}) \rightarrow 4\text{H}^+(\text{aq}) + 4\text{F}^-(\text{aq}) + \text{O}_2(\text{g})$
 (a) Fluorine is oxidized to F^-
 (b) Water is oxidized to O_2
 (c) Water is reduced to H^+
 (d) Oxidation state of fluorine does not change
205. The number of aluminium ions present in 54g of aluminium (atomic weight 27) is **[NDA-I 2014]**
 (a) 2 (b) 18
 (c) 1.1×10^{24} (d) 1.2×10^{24}

206. A fertilizer contains 20% nitrogen by mass. To provide a fruit tree with an equivalent of 1 kg of nitrogen, the quantity of fertilizer required is [NDA-I 2014]
 (a) 20 kg (b) 0.20 kg
 (c) 0.05 kg (d) 5 kg
207. Which of the following acids is a mineral acid? [NDA-I 2014]
 (a) Citric acid (b) Hydrochloric acid
 (c) Ascorbic acid (d) Tartaric acid
208. The temperature of water at the bottom of a lake whose upper surface has frozen to ice would be around [NDA-I 2014]
 (a) -10°C (b) 0°C
 (c) 4°C (d) -4°C
209. Dihydrogen can be prepared on a commercial scale by the action of steam on hydrocarbons, when a mixture of CO and H_2 gas is formed. It is known as [NDA-I 2014]
 (a) water gas
 (b) producer gas
 (c) industrial gas
 (d) fuel gas
210. Note the following balanced chemical equation: [NDA-I 2014]

$$2\text{CO} + \text{O}_2 = 2\text{CO}_2$$
 Which one of the following statements is significant in relation to the above chemical equation?
 (a) One can add to a vessel only 2 mol of CO for each mol of O_2 added
 (b) No matter how much of these two reagents are added to a vessel, 1 mol of O_2 is consumed
 (c) When they react, CO reacts with O_2 in a 2:1 mol ratio
 (d) When 2 mol of CO and 1 mol of O_2 are placed in a vessel, they will react to give 1 mol of CO_2
211. Which of the following is/are amphoteric? [NDA-I 2014]
 (a) $\text{Al}(\text{OH})_3$ (s) and $\text{Fe}(\text{OH})_3$ (s)
 (b) $\text{Al}(\text{OH})_3$ (s) and HCO_3^- (aq)
 (c) $\text{Ba}(\text{OH})_2$ (s) and NaOH (aq)
 (d) $\text{Al}(\text{OH})_3$ (s) only
212. A mixture of sodium chloride and naphthalene can be separated by [NDA-II 2013]
 (a) extraction with hot water
 (b) extraction with cold water
 (c) sublimation
 (d) steam distillation
213. Biogas consists of mainly [NDA-II 2013]
 (a) Methane (b) Ethane
 (c) Butane (d) Carbon dioxide
214. Two reactants in a flask produce bubbles gas; it turns lime water into milky. The reactants in the flask are [NDA-II 2013]
 (a) Zinc and hydrochloric acid
 (b) Magnesium carbonate and hydrochloric acid.
 (c) Magnesium nitrate and hydrochloric acid.
 (d) Magnesium sulphate and hydrochloric acid.
215. Metalloids are [NDA-II 2013]
 (a) alloys of alkali metals with other metals.
 (b) colloids of metals.
 (c) elements having some properties of both metals and non-metals.
 (d) metals heavier than lead.
216. A gas is evolved when a piece of zinc metal placed in dilute sulphuric acid (H_2SO_4). What is the gas? [NDA-II 2013]
 (a) Hydrogen (b) Oxygen
 (c) Water vapour (d) Sulphur dioxide
217. Oxygen on reaction with non-metals forms oxides, which are [NDA-II 2013]
 (a) basic oxides
 (b) acidic oxides
 (c) amphoteric oxides
 (d) neutral oxides
218. Chromium oxide is used as an ingredient in paints to obtain [NDA-II 2013]
 (a) green colour (b) blue colour
 (c) red colour (d) violet colour
219. Calcium ammonium nitrate (CAN) is a popular nitrogen fertilizer because it is [NDA-II 2013]
 (a) slow supplier of nitrogen.
 (b) having more percentage of nitrogen in it.
 (c) fixing the nitrogen in the soil.
 (d) capable of making the soil acidic.
220. The presence of sulphur in gunpowder. [NDA-II 2013]
 (a) decreases the ignition temperature.
 (b) increases the final temperature.
 (c) increases explosiveness of the gunpowder.
 (d) makes the powder smokeless.
221. **Statement I:** Glass is not considered as a true compound.
Statement II: Glass does not have a definite melting point. [NDA-II 2013]
 (a) Both the statements are individually true and Statement II is the correct explanation of Statement I
 (b) Both the statements are individually true but Statement II is not correct explanation of Statement I
 (c) Statement I is true but Statement II is false.
 (d) Statement I is false but Statement II is true.

