

MCQ's (XI Chemistry)

- Change in enthalpy of a system can be calculated by which of the following equations?
A. $\Delta H = \Delta E + PV$ B. $\Delta H = \Delta E - PV$
C. $\Delta H = \Delta E - d$ D. $\Delta H = \Delta E + d$
- Which is not characteristic of pi (π) bond
a. Pi bond is formed when a sigma bond already exists
b. pi bond are formed from hybrid sp orbitals
c. pi bond is weaker than a sigma bond
d. pi bond is more diffused than a sigma bond
- $N_2O_4(g) \leftrightarrow 2NO_2(g) - \text{Heat}$
In the endothermic reaction above more product formation will be favored by
A. by adding catalyst B. by adding NO_2
C. an increase in temperature D. by keeping volume constant
- The basic buffer solution can be prepared by mixing
A. weak base/salt with weak acid B. weak acid/salt with strong acid
C. weak acid/salt with strong base D. strong base/salt with weak acid
- The solubility of a substance decreases with increase in temperature if heat of solution is
A. positive B. negative C. zero D. can't predicted
- Which of the following is polar molecular solid?
A. Ice B. Sulphur
C. Dry Ice D. Phosphorus
- The mixture of helium and oxygen is called
A. Feron B. Freon C. Heliox D. Nichrome
- If the value of n is equal to 4, then l is equal to
A. 0 B. 0,1 C. 0,1,2 D. 0,1,2,3
- Where water boil rapidly?
A. Mount Everest B. Murree Hills C. Karachi D. Quetta
- Which of the following element is not radioactive?
A. Radium B. Polonium C. Germanium D. Uranium
- The s character in each sp^2 hybrid orbital is
A. 25% B. 33% C. 75% D. 66%
- The law which is used to calculate the partial pressure of gases is?
A. Boyle's law B. Charlie's Law C. Dalton's Law D. Avogadro's law
- Which of the following has highest boiling point?
A. Acetone B. Benzene C. Mercury D. Water
- The cell in which electrical energy is converted into chemical energy is called?
A. Galvanic cell B. Fuel cell C. electrolytic cell D. NiCd cell
- The energy of the system during endothermic reaction is
A. Increased B. Decreased
C. nothing happens D. First increases then decreases
- A substance that alters the rate of chemical reaction without being consumed in the reaction is called
A. Catalyst B. Reactant C. Products D. Activated complex
- A flask contains 500 cm^3 of SO_2 at STP. The flask contains
A. 40g B. 50g C. 100g D. 1.427g
- When pressure is increased two folds the volume of the gas
A. Increase two folds B. decrease two folds
C. reduces to half D. remain constant
- For which species Bohr's atomic model doesn't apply
A. H B. He^+ C. Li^{+2} D. Be
- Which of the following is the example of SP^2 hybridization?
A. CH_4 B. C_2H_2 C. BF_3 D. H_2O

21. The percentage of ionic character of bond between two atoms is calculated from their
 A. dipole moments
 B. electron affinities
 C. electronegativity's
 D. ionization energies
22. The number of molecules of 4g of hydrogen gas are _____ number of molecules of 56g of nitrogen gas
 A. equal to
 B. greater than
 C. less than
 D. none of these
23. Which of the following forces are also called London forces?
 A. ion-dipole forces
 B. dipole-induced dipole forces
 C. dipole-dipole forces
 D. dispersion forces
24. The geometry of BF_3 molecule is
 A. Planar
 B. Square planar
 C. angular
 D. Trigonal
25. The solids in which the atoms, ions or molecules have random non-repetitive three dimensional arrangement are termed as
 A. crystals
 B. glasses
 C. alloys
 D. amalgams
26. If a catalyst is added to a reaction in equilibrium what happens?
 A. decrease forward reaction
 B. increase forward reaction
 C. has no effect
 D. increase reverse reaction
27. Water can not act as a
 A. Lewis acid
 B. Lewis base
 C. Bronsted acid
 D. Bronsted base
28. The unit of the rate constant is the same as that of the rate of reaction in ____ order reaction
 A. first
 B. second
 C. third
 D. zero
29. 100g of a 10% (W/W) NaOH contains 10g of NaOH in
 A. 100g of water
 B. 110g of water
 C. 10g of water
 D. 100g of solution
30. The solubility of a substance decreases with increase in temperature if heat of solution is
 A. positive
 B. negative
 C. zero
 D. can't be predicted
31. Calorie is equivalent to
 A. 4.18 J
 B. 4.18 k J
 C. 0.418 J
 D. 0.418 kJ
32. Total heat content of a system is called
 A. internal energy
 B. enthalpy
 C. heat
 D. state function
33. Oxidation number of S in $\text{Na}_2\text{S}_2\text{O}_3$ is
 A. +1
 B. +2
 C. +3
 D. +4
34. A necklace has 6g of diamond in it. What are the numbers of atoms in it?
 A. 12.04×10^{23}
 B. 6.023×10^{23}
 C. 1.003×10^{23}
 D. 3.01×10^{23}
35. What is the mass of aluminium in 204g of the aluminium oxide?
 A. 26g
 B. 27g
 C. 54g
 D. 108g
36. From the discharge tube experiment, it is concluded that
 A. mass of a proton is in fraction
 B. matter contain electrons
 C. nucleus contains positive charge
 D. positive rays are heavier than protons
37. The geometry of BeCl_2 is
 A. angular
 B. linear
 C. pyramidal
 D. triangular
38. sp^3 hybridization is important in describing the bonding in
 A. NH_4^+
 B. CCl_4
 C. H_2O
 D. AgCl
39. 760 torr are equal to pascals
 A. 101325 pascals
 B. 760 pascals
 C. 1.01325 pascals
 D. one pascal
40. Which of the following two halogens are gases at room temperature?
 A. fluorine and iodine
 B. fluorine and chlorine
 C. chlorine and bromine
 D. bromine and iodine

41. The intermolecular forces are of ___ types
 A. two B. four C. five D. three
42. An imaginary plane dividing the crystal into two equal halves is called
 A. plane of symmetry B. axis of symmetry
 C. center of symmetry D. cleavage plan
43. Which of the following is orthorhombic in shape
 A. White tin B. grey tin C. Ag_2SO_4 D. Na_2SO_4
44. Crystal lattice is an arrangements of particles in _____ dimensions
 A. one B. two
 C. three D. four
45. In a crystal of NaCl each Cl ion is surrounded by
 A. two Na B. four Na
 C. six Na D. 10 Na
46. If a reaction at equilibrium has equal number of moles of products then changing pressure upon the reaction will
 A. increase forward reaction B. decrease forward reaction
 C. increase backward reaction D. has no effect
47. Solubility product is represented by
 A. K_p B. K_w C. K_{sp} D. K_x
48. An aqueous solution of sodium hydroxide is
 A. basic B. acidic C. neutral D. amphoteric
49. Reaction with high value of activation energy are
 A. fast B. slow
 C. exothermic D. reversible
50. Which of the following W/W solutions has the lowest freezing point?
 A. 18% glucose B. 6% urea
 C. 34.2% sucrose D. 9% glucose
51. Vitamin A has a molecular formula $\text{C}_{20}\text{H}_{30}\text{O}$. The number of vitamin A molecules in 500mg of its capsule will be
 A. 6.02×10^{19} B. 6.023×10^{23} C. 1.084×10^{18} D. 1.05×10^{21}
52. The reactant which is consumed first and due to which the whole reaction stops is called
 A. Excess reactant B. stoichiometric amount
 C. limiting reactant D. none of these
53. Alpha particles resemble
 A. He^{+2} B. He^+
 C. He D. He_2
54. Cathode rays are deflected by
 A. electric field B. magnetic field
 C. both D. none
55. An orbital can have maximum two electrons with opposite spin according to
 A. Pauli exclusion principle B. Hund's rule
 C. Auf Bau principle D. Heisenberg's principle
56. CO dioxide and methane has dipole moment value of
 A. both has zero B. zero and 1.85 D
 C. both have 1.7 D D. 1.7 and 2.5D respectively
57. Increase in pressure _____ the inter molecular forces
 A. increases B. decreases
 C. remains same D. none of these
58. The molar heat f fusion is measured at constant
 A. boiling point B. sublimation point
 C. melting point D. vaporization point

59. Liquid crystals are
 A. anisotropic B. isotropic C. solid D. pure crystals
60. Crystals formed due to the London forces of interaction are
 A. ionic B. covalent C. molecular D. metallic
61. The ionization of a weak electrolyte is decreased by the addition of another electrolyte due to
 A. solubility product B. ion product
 C. reaction quotient D. common ion effect
62. The basic buffer solution can be prepared by mixing
 A. weak base/weak acid B. weak base/strong acid
 C. weak acid/strong base D. strong base/weak acid
63. The smaller P_k value means
 A. higher K_a value B. lower K_a value
 C. higher K_b value D. lower P_{kb} value
64. CO_2 dissolves in water to form
 A. a base B. a salt C. an acid D. a metal
65. The lead storage cell delivers
 A. two voltage B. six voltage C. 12 voltage D. depends on size
66. In Na_2O_2 the oxidation state of oxygen is
 A. -2 B. +2
 C. -1 D. +1
67. Evaporation of water is
 A. exothermic change B. chemical change
 C. endothermic change D. a process where no change occurs
68. Out of 280 isotopes which occur in nature, radioactive isotopes are
 a. 116 b. 126 c. 30 d. 40
69. 27 g of Al react completely with how much mass of O_2 to produce Al_2O_3
 a. 8g b. 16g c. 32g d. 26g
70. %age of O in water is
 a. 80% b. 88.89% c. 8.89% d. 9.8%
71. The mass of one mole of electron is
 a. 1.008mg b. 0.5mg c. 0.184mg d. 1.73mg
72. Partial pressure of oxygen in the lungs is
 a. 159 torr b. 136 torr c. 116 torr d. 110 torr
73. The molar volume of CO_2
 a. STP b. $127^\circ C$ and 1 atm
 c. $0^\circ C$ and 2 atm d. $273^\circ C$ and 2 atm
74. The enthalpies of all elements in their standard states are
 a. unity b. zero c. always positive d. always negative
75. What is product of force and
 a. volume b. time c. displacement d. pressure
 d. any value of pressure
76. Which one of the following series lie in ultra-violet region
 a. Lyman b. Balmer c. Paschen d. Brackett
77. The shape of P orbitals is
 a. double dumbbell b. spherical c. dumbbell d. complicated
78. The elements having low ionization energy are
 a. Non-metals b. metals c. semi-metals d. metalloids
79. Which one of the following is not iso electronic with rest of the three
 a. K^+ b. Na^+ c. Cl^- d. S^{2-}
80. Born-Haber cycle is used to determine the
 a. combustion energy b. decomposition energy
 c. lattice energy d. formation energy

81. In endothermic reactions, the heat content of the
 a. products is more than the reactants b. reactants is more than the products
 c. Both a and b d. reactants and products is equal
82. Which one of the following processes is an exothermic one ?
 a. sublimation b. respiration c. fusion d. evaporation
83. The molal boiling point constant is the ratio of the elevation in B.P. to
 a. molarity b. molality
 c. mole fraction of solvent d. mole fraction of solute
84. In a mixture of 28g of N_2 and 96g of O_2 is
 a. 1.1 b. 0.51 c. 0.25 d. 0.11
85. One mole of methane react with one mole of steam to form 3 moles of hydrogen and one mole of CO. What volume of hydrogen can be obtained from 100cm³ of methane at the standard temperature and pressure?
 A. 300 cm³ B. 200 cm³ C. 150 cm³ D. 100 cm³
86. How many moles of oxygen are required for the complete combustion of two moles of butane?
 A. 2 B. 8 C. 10 D. 13
87. The Avogadro's constant is the number of
 A. atoms in 1 g of helium B. molecules in 35.5 g of chlorine
 C. atoms in 24 g of Mg D. electrons needed to deposit 24 g of Mg
88. Molarity of pure water is
 A. 1.0 B. 18.0 C. 55.5 D. 6.0
89. Which one of the following solution has the highest B.P.?
 A. 5.85% NaCl soln B. 18% Glucose soln
 C. 6% Urea soln D. all have the same B.P
90. When compressed hydrogen is allowed to expand repeatedly it rapidly, it causes
 A. cooling B. heating
 C. liquefaction D. solidification
91. In order to mention the boiling point of water at 110°C the external pressure should be
 A. between 760-1200 torr B. between 200-760 torr
 C. 100 torr D. any value of pressure
92. The geometry of NH_3 molecule is
 A. Planar B. Square planar
 C. Trigonal bipyramidal D. Tetrahedral
93. The nature of bond in CO_2 is
 A. covalent B. ionic C. molecular D. metallic
94. Which one of the following processes is an exothermic one?
 A. sublimation B. respiration
 C. fusion D. evaporation
95. The elements having low ionization energy are
 A. Non-metals B. metals C. semi-metals D. metalloids
96. Oxidation state of carbon in glucose is $C_6H_{12}O_6$ is
 A. 0 B. 1 C. 2 D. 5
97. What is the mass of oxygen in 108 g of the Al_2O_3 ?
 A. 48 g B. 27 g
 C. 54 g D. 108 g
98. In the reaction of ammonia with water which is bronsted acid
 A. water B. OH ions
 C. Ammonia D. None of these
99. One mole of methane react with one mole of steam to form 3 moles of hydrogen and one mole of CO. What volume of hydrogen can be obtained from 100cm³ of methane at the standard temperature and pressure?
 A. 300 cm³ B. 200 cm³ C. 150 cm³ D. 100 cm³
100. How many moles of oxygen are required for the complete combustion of two moles of butane?
 A. 2 B. 8 C. 10 D. 13

101. The Avogadro's constant is the number of
 A. atoms in 1 g of helium B. molecules in 35.5 g of chlorine
 C. atoms in 24 g of Mg D. electrons needed to deposit 24 g of Mg
102. Molarity of pure water is
 A. 1.0 B. 18.0 C. 55.5 D. 6.0
103. Which one of the following solution has the highest B.P.?
 A. 5.85% NaCl soln B. 18% Glucose soln
 C. 6% Urea soln D. all have the same B.P
104. When compressed hydrogen is allowed to expand repeatedly it rapidly, it causes
 A. cooling B. heating
 C. liquefaction D. solidification
105. In order to mention the boiling point of water at 110°C the external pressure should be
 A. between 760-1200 torr B. between 200-760 torr
 C. 100 torr D. any value of pressure
106. The geometry of NH₃ molecule is
 A. Planar B. Square planar
 C. Trigonal bipyramidal D. Tetrahedral
107. The nature of bond in CO₂ is
 A. covalent B. ionic C. molecular D. metallic
108. At constant volume q_v is equal to
 A. ΔH B. ΔE C. ΔP D. ΔV
109. Which one of the following processes is an exothermic one ?
 A. sublimation B. respiration
 C. fusion D. evaporation
110. Which one of the following is not iso electronic with rest of the three
 A. K⁺ B. Na⁺ C. Cl⁻ D. S⁻²
111. The reaction $2\text{KMnO}_4 + \text{Cl}_2 \rightarrow 2\text{KMnO}_4 + 2\text{KCl}$ is
 A. Chlorination of KMnO₄ B. Neutralization reaction
 C. Oxidation reduction reaction D. Neither Oxidation nor reduction
112. The elements having low ionization energy are
 A. Non-metals B. metals C. semi-metals D. metalloids
113. Oxidation state of carbon in glucose is C₆H₁₂O₆ is
 A. 0 B. 1 C. 2 D. 5
114. In the reaction of ammonia with water which is bronsted acid
 A. water B. OH ions
 C. Ammonia D. None of these
115. What is the mass of one mole of iodine molecule?
 A. 127g B. 254 g C. 74 g D. 139g
116. One mole of a gas occupy a volume of
 A. 22.4 cm³ B. 22.4 dm³ C. 22400 dm³ D. 220 dm³
117. Oxidation state of carbon in glucose is C₆H₁₂O₆ is
 A. 0 B. 1 C. 2 D. 5
118. If the salt bridge is not used between two half cells , then the voltage
 A. decreases rapidly B. decreases slowly
 C. does not change D. drops to zero
119. Which one of the following series lie in ultra-violet region
 A. layman B. balmer C. paschen D. bracket
120. The molal boiling point constant is the ratio of the elevation in B.P. to
 A. molarity B. molality
 C. mole fraction of solvent D. mole fraction of solute
121. 0.1 moles of a solute dissolved in 100g of solvent will be
 A. 0.1 m B. 0.5 m C. 1.0 m D. 0.1 M

122. The geometry of H₂O molecule is
 A. Angular B. Square planar
 C. Trigonal bipyramidal D. Tetrahedral
123. The concentration of reactants and products at equilibrium are
 A. equal B. maximum C. minimum D. constant
124. Molar concentration is called
 A. active mass B. weight C. mass D. none
125. The suppression of ionization of a weak acid or a weak base by adding one of its own ions is known as
 A. buffer action B. common ion effect
 C. buffer capacity D. ionization effect
126. When K_c value is small, the equilibrium position is
 A. towards left B. towards right
 C. remains unchanged D. none of these
127. 27 g of Al react completely with how much mass of O₂ to produce Al₂O₃
 A. 8g B. 16g C. 32g D. 26g
128. %age of O in water is
 A. 80% B. 88.89% C. 8.89% D. 9.8%
129. The shape of d orbitals is
 A. double dumbbell B. spherical
 C. dumbbell D. complicated
130. (xvi) When electron jumps from infinity to shell number 4 the series is called
 131. A. balmer B. Pfund
 132. C. paschen D. bracket
133. (xvii) Mathematically Boyle's law is shown as
 134. A. PT=K B. VT=K C. P/T = k D. PV=K
135. i. One mole of oxygen molecule is equal to
 A. 18 g of O₂ B. 6.023×10²³ molecules C. 8g of O₂ D. 20 g of O₂
136. (ii) Formula mass of NaCl expressed in grams is called
 137. A. Gram atom B. gram molecule C. mole D. formula unit
138. (iii) Wave mechanical model of the atom depends upon
 139. A. De- Broglie's equation B. Uncertainty principle
 140. C. Schrodinger's equation D. All of the above
141. (iv) The splitting of spectral lines into further fine lines in magnetic field is called
 142. A. Compton effect B. Stark's effect
 143. C. Zeeman's effect D. Joule Thomson effect
144. (v) The bond energies of F₂, Cl₂, Br₂ and I₂ are 37, 58, 46 and 36 K Cals respectively. The strongest bond is formed in
 145. A. F₂ B. Br₂ C. Cl₂ D. I₂
146. (vi) When compressed hydrogen is allowed to expand rapidly, it causes
 147. A. cooling B. heating
 148. C. liquification D. solidification
149. (vii) Vander waal's forces are effective at
 150. A. Short distance B. at long distance
 151. C. both short and long distance D. Independent of distance
152. (viii) The geometry of PF₅ molecule is
 153. A. Planar B. Square planar
 154. C. Trigonal bipyramidal D. Tetrahedral
155. (ix) The nature of bond in diamond is
 156. A. covalent B. ionic C. molecular D. metallic

157. (x) NaCl can be purified by passing HCl gas through the _____ solution of NaCl
158. A. Dilute B. concentrated C. hot D. cold
159. (xi) A base is a substance which will neutralize an acid. Which of these is not a base?
160. A. Aqueous ammonia B. copper oxide
161. C. potassium chloride D. sodium carbonate
162. (xii) The rate of the reaction _____ as the reaction proceeds
163. A. Increases B. decreases
164. C. remain constant D. may increase or decrease
165. (xiii) 18 grams of glucose is dissolved in 180 grams of water. The relative lowering of vapour pressure is
166. A. 1 B. 1.8 C. 0.01 D. 0.001
167. (xiv) Which of the following substances has zero value of standard enthalpy of formation?
168. A. O₃ B. ZnO C. H₂O D. None
169. (xv) The electrode through which the electrons enter to the electrolytic solution is
170. A. Anode B. cathode C. salt bridge D. electrolyte
171. (xvi) What is the mass of aluminium in 204 g of the Al₂O₃?
172. A. 26 g B. 27 g
173. C. 54 g D. 108 g
174. (xvii) The sum of all the exponents of the molar concentration term in the rate equation is called
175. A. Rate of reaction B. order of reaction
176. C. molecularity of the reaction D. Stoichiometry
- ii. How many molecules are there in 0.5 mole of H₂O?
177. A. 6.02×10^{19} B. 6.023×10^{23} C. 3.01×10^{23} D. 1.6×10^{-19}
178. (ii) Knowledge obtained from a balanced chemical equation is called
179. A. Equilibrium B. chemistry C. stoichiometry
- D. combustion analysis
180. (iii) Wave mechanical model of the atom depends upon
181. A. De- Broglie's equation B. Uncertainty principle
182. C. Schrodinger's equation D. All of the above
183. (iv) The splitting of spectral lines into further fine lines in magnetic field is called
184. A. Compton effect B. Stark's effect
185. C. Zeeman's effect D. Joule Thomson effect
186. (v) The bond energies of F₂, Cl₂, Br₂ and I₂ are 37, 58, 46 and 36 K Cals respectively. The strongest bond is formed in
187. A. F₂ B. Br₂ C. Cl₂ D. I₂
188. (vi) When compressed hydrogen is allowed to expand rapidly, it causes
189. A. cooling B. heating
190. C. liquification D. solidification
191. (vii) Vander waal's forces are effective at
192. A. Short distance B. at long distance
193. C. both short and long distance D. Independent of distance
194. (viii) The geometry of PF₅ molecule is
195. A. Planar B. Square planar
196. C. Trigonal bipyramidal D. Tetrahedral
197. (ix) The nature of bond in diamond is
198. A. covalent B. ionic C. molecular D. metallic
199. (x) NaCl can be purified by passing HCl gas through the _____ solution of NaCl
200. A. Dilute B. concentrated C. hot D. cold
201. (xi) A base is a substance which will neutralize an acid. Which of these is not a base?

202. A. Aqueous ammonia B. copper oxide
 203. C. potassium chloride D. sodium carbonate
 204. (xii) The rate of the reaction _____ as the reaction proceeds
 205. A. Increases B. decreases
 206. C. remain constant D. may increase or decrease
 207. (xiii) 18 grams of glucose is dissolved in 180 grams of water. The relative lowering of vapour pressure is
 208. A. 1 B. 1.8 C. 0.01 D. 0.001
 209. (xiv) Which of the following substances has zero value of standard enthalpy of formation?
 210. A. O₃ B. ZnO C. H₂O D. None
 211. (xv) The electrode through which the electrons enters to the electrolytic solution is
 212. A. Anode B. cathode C. salt bridge D. electrolyte
 213. (xvi) What is the mass of aluminium in 204 g of the Al₂O₃?
 214. A. 26 g B. 27 g
 215. C. 54 g D. 108 g
 216. (xvii) The sum of all the exponents of the molar concentration term in the rate equation is called
 217. A. Rate of reaction B. order of reaction
 218. C. molecularity of the reaction D. Stoichiometry
 219. A. 6.02×10¹⁹ B. 6.023×10²³ C. 1.084×10¹⁸ D. 1.6×10⁻¹⁹
 220. (ii) Which of the following compounds contains the highest percentage by mass of nitrogen
 221. A. NH₃ B. N₂H₄ C. NO D. NH₂OH
 222. (iii) Wave mechanical model of the atom depends upon
 223. A. De- Broglie's equation B. Uncertainty principle
 224. C. Schrodinger's equation D. All of the above
 225. (iv) The splitting of spectral lines into further fine lines in magnetic field is called
 226. A. Compton effect B. Stark's effect
 227. C. Zeeman's effect D. Joule Thomson effect
 228. (v) The bond energies of F₂, Cl₂, Br₂ and I₂ are 37, 58, 46 and 36 K Cals respectively. The strongest bond is formed in
 229. A. F₂ B. Br₂ C. Cl₂ D. I₂
 230. (vi) When compressed hydrogen is allowed to expand rapidly, it causes
 231. A. cooling B. heating
 232. C. liquefaction D. solidification
 233. (vii) Vander Waal's forces are effective at
 234. A. Short distance B. at long distance
 235. C. both short and long distance D. Independent of distance
 236. (viii) The geometry of PF₅ molecule is
 237. A. Planar B. Square planar
 238. C. Trigonal pyramidal D. Tetrahedral
 239. (ix) The nature of bond in diamond is
 240. A. covalent B. ionic C. molecular D. metallic
 241. (x) NaCl can be purified by passing HCl gas through the _____ solution of NaCl
 242. A. Dilute B. Concentrated C. hot D. cold
 243. (xi) A base is a substance which will neutralize an acid. Which of these is not a base?
 244. A. Aqueous ammonia B. copper oxide
 245. C. potassium chloride D. sodium carbonate
 246. (xii) The rate of the reaction _____ as the reaction proceeds
 247. A. Increases B. decreases
 248. C. remain constant D. may increase or decrease
 249. (xiii) 18 grams of glucose is dissolved in 180 grams of water. The relative lowering of vapour pressure is

250. A. 1 B. 1.8 C. 0.01 D. 0.001
251. (xiv) Which of the following substances has zero value of standard enthalpy of formation?
252. A. O₃ B. ZnO C. H₂O D. None
253. (xv) The electrode through which the electrons enters to the electrolytic solution is
254. A. Anode B. cathode C. salt bridge D. electrolyte
255. (xvi) What is the mass of aluminium in 204 g of the Al₂O₃?
256. A. 26 g B. 27 g
257. C. 54 g D. 108 g
258. (xvii) The sum of all the exponents of the molar concentration term in the rate equation is called
259. A. Rate of reaction B. order of reaction
260. C. molecularity of the reaction D. Stoichiometry
- iv. A flask contains 500 cm³ of SO₂ at STP. The flask contains
261. A. 40g B. 50g C. 100g D. 1.427g E. 25.5g
262. (ii) When pressure is increased two folds the volume of the gas
263. A. Increase two folds B. decrease two folds
264. C. reduces to half D. remain constant
265. E. Reduces four times
266. (iii) For which species Bohr's atomic model doesn't apply
267. A. H B. He⁺ C. Li²⁺ D. Be E. H⁻¹
268. (iv) According to VSEPR theory, the geometry of the molecule having 5 bond pairs in outer most shell will be
269. A. Tri angular B. Square planar
270. C. Trigonal bipyramidal D. Octahedral
271. E. Tetrahedral
272. (v) The stoichiometry of a catalysed reaction is shown by the equation below.
273. P(g) + Q(g) R(g) + S(l)
274. Two experiments were carried out in which the rate of production of R was measured. The results are shown in the diagram below.
275. Experiment 1
276. Amount of R Experiment 2
277. 0/0 Time
278. Which changes in the conditions might explain the results shown?
1. A lower pressure was used in experiment 2
 2. A different catalyst was used in experiment 2
 3. Product S was continuously removed from the reaction vessel in experiment 2
 4. Reactant P was continuously removed from the reaction vessel in experiment 2
 5. Product R was continuously added to the reaction vessel in experiment 2

279. (vi) Which of the following is suitable equation for showing kinetic energy of one mole of the gas molecules?
280. A. $3RT$ B. $RT/2$
 281. C. $3/2RT$ D. $2RT$
 282. E. $2/3RT$
283. (vii) The third line of Balmer series appear due to transition of electron from
284. A. n_5 to n_1 B. n_5 to n_2
 285. C. n_5 to n_3 D. n_5 to n_4
 286. E. n_4 to n_1
287. (viii) The valence shell electronic configuration of an atom is $3s^2 3p^1$. Which set of quantum number is permissible for $3p$ electron.
288. A. $n=3$ $l=0$ $m=0$ $s=+\frac{1}{2}$ B. $n=3$ $l=1$ $m=1$ $s=-\frac{1}{2}$
 289. C. $n=4$ $l=2$ $m=2$ $s=+\frac{1}{2}$ D. $n=3$ $l=2$ $m=1$ $s=+\frac{1}{2}$
 290. E. $n=3$ $l=2$ $m=2$ $s=-\frac{1}{2}$
291. (ix) In which of the following reactions K_c and K_p will be equal
292. A. $PCl_5 \rightleftharpoons PCl_3 + Cl_2$ B. $N_2 + 3H_2 \rightleftharpoons 2NH_3$
 293. C. $2SO_2 + O_2 \rightleftharpoons 2SO_3$ D. $N_2 + O_2 \rightleftharpoons 2NO$
 294. E. $C_3H_8 + 5O_2 \rightleftharpoons 3CO_2 + 4H_2O$
295. (x) If a catalyst is added to a reaction in equilibrium what happens to the equilibrium position?
296. A. decrease forward reaction B. more products will be formed
 297. C. more reactants will be consumed D. increase reverse reaction
 298. E. decrease E_a of the reaction
299. (xi) Water can not act as a
300. A. Lewis acid B. Lewis base
 301. C. Bronsted acid D. Bronsted base
302. (xii) The unit of the rate constant is the same as that of the rate of reaction in ___ order reaction
303. A. first B. second C. third D. zero
304. (xiii) 100g of a 10% (W/W) NaOH contains 10g of NaOH in
305. A. 100g of water B. 110g of water
 306. C. 10g of water D. 100g of solution
307. (xiv) The solubility of a substance decreases with increase in temperature if heat of solution is
308. A. positive B. negative C. zero D. can't be predicted
309. (xv) Calorie is equivalent to
310. A. 4.18 J B. 4.18 k J C. 0.418 J D. 0.418 kJ
311. (xvi) Total heat content of a system is called
312. A. internal energy B. enthalpy
 313. C. heat D. state function
314. (xvii) Oxidation number of S in $Na_2S_2O_3$ is
315. A. +1 B. +2 C. +3 D. +4
- v. If four moles of SO_2 are oxidized to SO_3 , how many moles of oxygen molecules are required?
316. A. 0.5 B. 1.0
 317. C. 1.5 D. 2.0
318. (ii) One mole of ethanol and one mole of ethane have an equal
319. A. Mass B. Number of Atoms
 320. C. Number of electrons D. Number of molecules
321. (iii) When electron jumps from higher shells to shell 3, the series of lines produced is called
322. A. Lyman series B. Balmer series

323. C. Pfund series D. Paschen series
324. (iv) The splitting of spectral lines into further fine lines in magnetic field is called
325. A. Compton effect B. Stark's effect
326. C. Zeeman's effect D. Joule Thomson effect
327. (v) According to $n+l$ rule which of the following will be filled first in electronic configuration
328. A. 3d B. 4p
329. C. 3p D. 4s
330. (vi) For which species Bohr's theory does not apply?
331. A. H B. He+
332. C. Li²⁺ D. Be
333. (vii) The percentage of ionic character of bond between two atoms is calculated from their
334. A. Dipole moments B. Electronegativities
335. C. Electron affinities D. Ionization energies
336. (viii) The geometry of PF₅ molecule is
337. A. Planar B. Square planar
338. C. Trigonal bipyramidal D. Tetrahedral
339. (ix) SP³ hybridization is important in explaining the structure of
340. A. BeCl₂ B. H₂O
341. C. BF₃ D. C₂H₄
342. (x) 760 torr are equal to
343. A. 760 pascal B. 101325 Pascal
344. C. 1.01325 Pascal D. one Pascal
345. (xi) According to Kinetic theory of gases, the molecular collisions are elastic. Such collisions cause
346. A. No energy change B. A small change in energy
347. C. High energy change D. None of these
348. (xii) What volume would one mole of hydrogen occupy at S.T.P?
349. A. 11.2 dm³ B. 22.4 dm³
350. C. 33.6 dm³ D. 44 dm³
351. (xiii) When steam condenses, the particles
352. A. shrinks to a smaller size B. move further apart
353. C. lose energy to the surrounding D. vibrate about fixed position
354. (xiv) Pressure exerted by a gas is due to
355. A. Their motion B. Large inter molecular forces
356. C. High compressibility D. Collision
357. (xv) The stoichiometric calculation of a chemical reaction results in
358. A. Actual yield B. Theoretical yield
359. C. Percentage yield D. None of these
360. (xvi) What is the mass of aluminium in 204 g of the Al₂O₃?
361. A. 26 g B. 27 g
362. C. 54 g D. 108 g
363. (xvii) The reactant which is consumed earlier and gives least amount of product is called
364. A. Reactant in excess B. Limiting reactant
365. C. Stoichiometric amount D. Stoichiometry
- vi. How many molecules are there in one mole of H₂O?
366. A. 6.02×10¹⁹ B. 6.023×10²³
367. C. 1.084×10¹⁸ D. 1.6×10⁻¹⁹ E. 1.9×10⁻³¹
368. (ii) The bond energies of F₂, Cl₂, Br₂ and I₂ are 37, 58, 46 and 36 K Cals respectively. The strongest bond is formed in
369. A. F₂ B. Br₂ C. Cl₂ D. I₂ E. None of these
370. (iii) The geometry of PF₅ molecule is
371. A. Planar B. Square planar
372. C. Trigonal pyramidal D. Tetrahedral E. Octahedral

373. (iv) According to VSEPR theory, the geometry of the molecule having 5 bond pairs in outer most shell will be
374. A. Tri angular B. Square planar
375. C. Trigonal bipyramidal D. Octahedral
376. E. Tetrahedral
377. (v) The sum of all the exponents of the molar concentration term in the rate equation is called
378. A. Rate of reaction B. order of reaction
379. C. molecularity of the reaction D. Stoichiometry
380. E. Enthalpy of the reaction
381. (vi) The geometry of BeCl_2 is
382. A. angular B. linear
383. C. pyramidal D. triangular E. square planar
384. (vii) SP^3 hybridization is important in describing the bonding in
385. A. NH_4^+ B. CCl_4
386. C. H_2O D. AgCl E. C_2H_2
387. (viii) 760 torr are equal to pascals
388. A. 101325 pascals B. 760 pascals
389. C. 1.01325 pascals D. one pascal E. 720 pascals
390. (ix) In which of the following reactions K_c and K_p will be equal
391. A. $\text{PCl}_5 \rightleftharpoons \text{PCl}_3 + \text{Cl}_2$ B. $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$
392. C. $2\text{SO}_2 + \text{O}_2 \rightleftharpoons 2\text{SO}_3$ D. $\text{N}_2 + \text{O}_2 \rightleftharpoons 2\text{NO}$
393. E. $\text{C}_3\text{H}_8 + 5\text{O}_2 \rightleftharpoons 3\text{CO}_2 + 4\text{H}_2\text{O}$
394. (x) An imaginary plane dividing the crystal into two equal halves is called
395. A. plane of symmetry B. axis of symmetry
396. C. center of symmetry D. cleavage plan
397. E. Isotropy
398. (xi) Crystal lattice is an arrangement of particles in _____ dimensions
399. A. one B. two
400. C. three D. four E. Five
401. (xii) In a crystal of NaCl each Cl ion is surrounded by
402. A. two Na B. four Na
403. C. six Na D. 10 Na E. seven Na
404. (xiii) If a reaction at equilibrium has equal number of moles of products then changing pressure upon the reaction will
405. A. increase forward reaction B. decrease forward reaction
406. C. increase backward reaction D. has no effect
407. E. Increases the amount of products
408. (xiv) Mathematically Charle's law is shown as
409. A. $PT=K$ B. $VT=K$ C. $P/T = k$ D. $PV=K$
410. E. $V/T=K$
411. (xv) Solubility product is represented by
412. A. K_p B. K_w
413. C. K_{sp} D. K_x E. K_c
414. (xvi) Reaction with high value of activation energy is
415. A. fast B. slow
416. C. exothermic D. reversible
417. E. endothermic
418. (xvii) The ionization the of a weak electrolyte is decreased by the addition of another electrolyte due to
419. A. solubility product B. ion product
420. C. reaction quotient D. common ion effect E. joule Thomson effect
421. (xviii) The basic buffer solution can be prepared by mixing
422. A. weak base/salt with weak acid B. weak acid/salt with strong acid

423. C. weak acid/salt with strong base D. strong base/salt with weak acid
424. E. strong base/salt with strong acid
425. (xix) Evaporation of water is
426. A. exothermic change B. chemical change
427. C. non spontaneous process D. a process where no change occurs
428. E. spontaneous process
429. (xx) The nature of bond in crystals is
430. A. covalent B. ionic C. molecular D. metallic
431. E. co-ordinate covalent
432. (xxi) In order to mention the boiling point of water at 110°C the external pressure should be
433. A. between 760-1200 torr B. between 200-760 torr
434. C. 100 torr D. any value of pressure
435. E. less than 200 torrs
436. (xxii) Which of the following is considered as amphoteric in nature
437. A. water B. HCl
438. C. Ammonia D. NaOH
439. E. CO₂
440. (xxiii) K_c value is small for the following reaction
441. N₂ + O₂ ? 2NO
442. It shows that the equilibrium position will shift in which of the following ways to attain equilibrium
443. A. more N₂ will be formed B. more NO will be formed
444. C. remains unchanged D. more O₂ will be formed
445. E. more NO will be consumed
446. (xxiv) The K_{sp} of AgCl is 2.0x10⁻¹⁰ mole² dm⁻⁶ . The number of Ag⁺¹ ions in the solution is
447. A. 2.0x10⁻¹⁰ mol dm⁻³ B. 1.41x10⁻⁵ mol dm⁻³
448. C. 1.0x10⁻¹⁰ mol dm⁻³ D. 4.0x10⁻²⁰ mol dm⁻³
449. E. 3.9x10⁻¹² mol dm⁻³
450. (xxv) To calculate the pressure or volume of a real gas under the non-ideal conditions alternative kinetic equation has been developed this is known as
451. A. General gas equation B. Arrhenius equation
452. C. Clasius Clapryon equation D. Vander Waal equation
453. E. Boltzmann equation
454. (xxvi) Pressure remaining constant , at which temperature the volume of the gas will become twice of what it is at 0°C
455. A. 546°C B. 200°C
456. C. 546K D. 273 K E. 196K
457. (xxvii) If a crystal exists in more than one crystalline form such property is called
458. A. polymorphism B. isomorphism
459. C. anisotrophy D. allotrophy
460. E. isotrophy
461. (xxviii) A substance which retards the rate of reaction is called
462. A. Inhibitor B. .Activator
463. C. Oxidant D. Auto-catalyst E. none of these
464. (xxix) When a reaction proceeds in sequence of steps , the overall rate is determined by
465. A. fastest step B. slowest step
466. C. molecularity of all steps D. order of different steps
467. E. both fast and slow steps
468. (xxx) Geometry of a molecule will be tetrahedral when the number of electrons in the outermost shell of central atom is

- | | | | | |
|------|----|-----------------------------|----|---------------------------|
| 469. | A. | 3 bond pairs, one lone pair | B. | 4 bond pair, No lone pair |
| 470. | C. | 2 bond pairs, 2 lone pairs | D. | 1 lone pair, 3 bond pairs |
| 471. | E. | 1 bond pair, 4 lone pairs | | |