201. The movement of colloidal particles towards their respective electrodes in the presence of an electric field is known as

a) Electrolysis b) Brownian movement

c) Dialysis d) Electrophoresis

202. Lyophilic sols are

a) Irreversible sols b) They are prepared from inorganic compounds

c) Coagulated by adding electrolytes d) Self-stabilising

203. Clouds, mist, fog and aerosols are colloidal solutions of :

a) Solid in a gas b) Gas in a solid c) Liquid in a gas d) Gas in a liquid

204. Protons accelerate the hydrolysis of esters. This is an example of :

a) A heterogeneous catalysis

b) An acid-base catalysis

c) A promoter

d) A negative catalyst

205. In the titration between oxalic acid and acidified potassium permanganate, the manganous salt formed during the reaction catalyses the reaction. The manganous salt acts as :

a) A promoter b) A positive catalyst c) An autocatalyst d) None of these

206. In Freundlich Adsorption isotherm, the value of 1/n is :

a) 1 in case of physical adsorption

b) 1 in case of chemisorption

c) Between 0 and 1 in all cases

d) Between 2 and 4 in all cases

207. Purple of cassius is

a) Colloidal solution of Au

b) Colloidal solution of Pt

c) Colloidal solution of Ag

d) Colloidal solution of As

208. Freundlich equation for adsorption of gases (in amount ofX g) on a solid(in amount of m g)at constant temperature can be expressed as

a) <img src="208\_A1.gif" > b) <img src="208\_A2.gif" >

c) <img src="208\_A3.gif" > d) <img src="208\_A4.gif" >

209. Which acts as poison to finely divided Fe in Haber’s process for the manufacture of NH<sub>3</sub>?

a) CO<sub>2</sub> b) NO c) CO d) N<sub>2</sub>

210. The fresh precipitate can be transformed in colloidal state by

a) Peptization b) Coagulation c) Diffusion d) None of these

211. The curve showing the variation of adsorption with pressure at constant temperature is called

a) An isostere b) Adsorption isotherm c) Adsorption isobar d) None of these

212. Tyndall effect shown by colloids is due to

a) Scattering of light by the particles b) Movement of particles

c) Reflection of light by the particles d) Coagulation of particles

213. Negative catalyst or inhibitor is one :

a) Which retards the rate of reaction

b) Takes the reaction in forward direction

c) Promotes the side reaction

d) None of the above

214. Which is not a colloid?

a) Chlorophyll b) Egg white c) Ruby glass d) Milk

215. Which forms micelles in aqueous solution above certain concentration?

a) Glucose

b) Dodecyl trimethyl ammonium chloride

c) Urea

d) Pyridinium chloride

216. Cod liver oil is :

a) Fat dispersed in water

b) Water dispersed in fat

c) Water dispersed in oil

d) Fat dispersed in fat

217. Colour of colloids depend on which of the factors?

a) Size b) Mass c) Charge d) Nature

218. Colloidal gold is given by injection to act as

a) Disinfectant b) Anticancer agent

c) Germ killer d) Tonic to raise vitality of human systems

219. The outcome of internal liquid of gels on shear is called :

a) Synerisis b) Thixotropy c) Swelling d) None of these

220. A catalyst in the finely divided form is most effective because :

a) Less surface area is available

b) More active centres are formed

c) More energy gets stored in the catalyst

d) None of the above

221. Gold numbers of protective colloids A,B,C and D are 0.50, 0.01, 0.10, and 0.005, respectively. The correct order of their protective powers is

a) D<A<C<B b) C<B<D<A c) A<C<B<D d) B<D<A<C

222. The coagulation of 10 cm!3 of gold sol is completely prevented by addition of 0.025 g of starch to it. The gold number of starch is

a) 0.025 b) 0.25 c) 2.55 d) 25

223. 50 mL of 1 M oxalic acid is shaken with 0.5g wood charcoal. The final concentration of the solution after adsorption is 0.5 M. What is the amount of oxalic acid absorbed per gram of carbon?

a) 3.15 g b) 3.45 g c) 6.30 g d) None of these

224. Colloidal sol is :

a) True solution b) Suspension c) Heterogeneous sol d) Homogeneous sol

225. The blue colour of the water of the sea is due to :

a) Refraction of the blue light by the impurities in sea water

b) Reflection of blue light by sea water

c) Scattering of blue light by sol paricles

d) Absorption of other colours except the blue colour by water molecules

226. The spontaneous outcome of internal liquid from gels is called :

a) Synerisis b) Thixotropy c) Swelling d) None of these

227. Solid aerosol is an example of colloidal system of :

a) Liquid dispersed in gas

b) Gas dispersed in gas

c) Solid dispersed in gas

d) Solid dispersed in liquid

228. Which is more powerful to coagulate the negative colloid?

a) ZnSO<sub>4</sub> b) Na<sub>3</sub> PO<sub>4</sub> c) AlCl<sub>3</sub> d) K<sub>4</sub> [Fe(CN)<sub>6</sub> ]

229. Which is used as catalyst to retard the oxidation of chloroform?

a) H<sub>2</sub> O b) C<sub>2</sub> H<sub>5</sub> OH c) Glycerol d) H<sub>2</sub> SO<sub>4</sub>

230. Micelle is a term used for the aggregates formed in solution by

a) Colloidal electrolyte b) Colloidal non-electrolyte

c) Non associated colloids d) None of the above

231. Which reaction characteristics are changing by the addition of a catalyst to a reaction at constant temperature?<br />(i)activation energy <br />(ii)Equilibrium constant<br /> (iii)Reaction entropy<br /> (iv)Reaction enthalpy

a) (i) only b) (iii) only c) (i) and (ii) only d) All of these

232. The colour of sky is due to

a) Transmission of light b) Wavelength of scattered light

c) Adsorption of light by atmospheric gases d) All of the above

233. Egg albumin is :

a) Reversible colloid b) Lyophilic colloid c) Protective colloid d) All of these

234. How many layers are adsorbed in chemical adsorption?

a) One b) Two c) Many d) Zero

235. Blood may be purified by

a) Dialysis b) Electro-osmosis c) Coagulation d) Filtration

236. Who coined the term catalysis and awarded Nobel Prize?

a) Berzelius b) Kolbe c) Wholer d) Rutherford

237. The sky looks blue due to

a) Dispersion effect b) Reflection effect c) Transmission effect d) Scattering effect

238. Fermentation of starch to give alcohol takes place in presence of :

a) Enzymes b) CO<sub>2</sub> c) Air d) N<sub>2</sub>

239. Efficiency of catalyst depends on

a) Concentration b) Molecular mass c) Size of particles d) None of these

240. The amount of gas adsorbed physically on charcoal increases with :

a) Temperature and pressure

b) Temperature and decreases with pressure

c) Pressure and decreases with temperature

d) None of the above

241. Which statement is wrong?

a) The catalyst does not alter the equilibrium of a reaction

b) Reaction with higher activation energy has higher rate constant

c) In the endothermic reaction, the activation energy of the reaction is higher than that of heat of reaction

d) Half-life period of a first order reactions is independent of initial concentration

242. During hydrogenation of oils, catalyst commonly used is :

a) Pd or CuCl<sub>2</sub> b) Finely divided Ni c) Fe d) V<sub>2</sub> O<sub>5</sub>

243. Which of the following reactions is an example of heterogeneous catalysis?

a) <img src="243\_A1.gif" >

b) <img src="243\_A2.gif" >

c) <img src="243\_A3.gif" >

d) <img src="243\_A4.gif" >

244. Which is not a macromolecule?

a) Palmitate b) Starch c) DNA d) Insulin

245. Physical adsorption increases when

a) Temperature increases b) Temperature decreases

c) Temperature remains constant d) Temperature increases above 60℃

246. Soap removes grease by :

a) Adsorption b) Emulsification c) Coagulation d) None of these

247. Which of the following is correct according to adsorption isotherm?

a) <img src="247\_A1.gif" > b) <img src="247\_A2.gif" > c) <img src="247\_A3.gif" > d) All of these

248. Which of the following statements is incorrect regarding physisorptions?

a) It occurs because of van der Waals’ forces

b) More easily liquefiable gases are adsorbed readily

c) Under high pressure it results into multimolecular layer on adsorbent surface

d) Enthalpy of adsorption (∆H<sub>adsorption</sub> ) is slow and positive

249. In which process, a catalyst is not used?

a) Deacon’s process b) Solvay’s process c) Chamber process d) Haber’s process

250. Hydrolysis of urea is an example of

a) Homogeneous catalysis b) Heterogeneous catalysis

c) Biochemical catalysis d) Zeolite catalysis

251. Which of the following is a heterogeneous catalysis?

a) <img src="251\_A1.gif" > b) <img src="251\_A2.gif" >

c) <img src="251\_A3.gif" > d) <img src="251\_A4.gif" >

252. Milk is

a) Fat dispersed in water b) Fat dispersed in milk

c) Fat dispersed in fat d) Water dispersed in milk

253. Which of the following is the best protective colloid?

a) Gelatin (Gold no.=0.005) b) Gum Arabic (Gold no. =0.15)

c) Egg albumin (Gold no.=0.08) d) None of the above

254. Which of the following reactions lead to the formation of colloidal solution?

a) Cu+HgCl<sub>2</sub>→CuCl<sub>2</sub>+Hg b) 2HNO<sub>3</sub>+3H<sub>2</sub> S→3S+H<sub>2</sub> O+2NO

c) 2Mg+CO<sub>2</sub>→2MgO+C d) Cu+CuCl<sub>2</sub>→2CuCl

255. The coagulation of sol particles or sol destruction may be brought in by :

a) Cataphoresis

b) Adding oppositively charged sol

c) Adding electrolyte

d) All of the above

256. Which is an example of a heterogeneous catalysis?

a) Formation of SO<sub>3</sub> in the chamber process

b) Formation of SO<sub>3</sub> in the contact process

c) Hydrolysis of an ester in the presence of H<sup>+</sup> ions

d) Combination of H<sub>2</sub> and Cl<sub>2</sub> in the presence of moisture

257. A negatively charged suspension of clay in water needs for precipitation the minimum amount of :

a) Aluminium chloride b) Potassium sulphate c) Sodium hydroxide d) Hydrochloric acid

258. The Brownian motion is due to:

a) Temperature fluctuations within the liquid phase

b) Attraction and repulsion between charges on the colloidal particles

c) Impact of the molecules of the dispersion medium on the colloidal particles

d) Convective currents

259. What will be the Freundlich adsorption isotherm equation at high pressure?

a) <img src="259\_A1.gif" > b) <img src="259\_A2.gif" > c) <img src="259\_A3.gif" > d) None of these

260. An example for autocatalysis is

a) Oxidation of NO to NO<sub>2</sub> b) Oxidation of SO<sub>2</sub> to SO<sub>3</sub>

c) Decomposition of KClO<sub>3</sub>to KCl and O<sub>2</sub> d) Oxidation of oxalic acid by acidified KMnO<sub>4</sub>

261. The action of enzymes in living system is to

a) Supply energy to tissues b) Create immunity

c) Circulate oxygen d) Enhance the rate of biochemical reactions

262. According to the adsorption theory of catalysis, the speed of the reaction increases because

a) The concentration of reactant molecules at the active centres of the catalyst becomes high due to adsorption

b) In the process of adsorption, the activation energy of the molecules becomes large

c) Adsorption produces heat which increases the speed of the reaction

d) Adsorption lowers the activation energy of the reaction

263. A catalyst :

a) Alter the reaction mechanism

b) Decreases the activation energy

c) Increases collision frequency

d) Increases the average kinetic energy of reacting species

264. The addition of 1% alcohol to chloroform acts as

a) Auto-catalyst b) Bio-catalyst c) Positive catalyst d) Negative catalyst

265. Which of the following does not form anionic micelle?

a) C<sub>12</sub> H<sub>2</sub>5 COONa b) C<sub>12</sub> H<sub>2</sub>5 SO<sub>4</sub> Na c) C<sub>12</sub> H<sub>2</sub>5 SO<sub>3</sub> Na d) C<sub>12</sub> H<sub>2</sub>5 (NH<sub>3</sub> )<sub>3</sub> Cl

266. Which of the following is not a method of preparation of colloidal solution?

a) Electrical dispersion b) Peptization

c) Coagulation d) Mechanical dispersion

267. The density of gold is 19 g/cm3. If 1.9×10<sup>-4</sup> g of gold is dispersed in 1 L of water to give a sol having spherical gold particles of radius 10 nm, then the number of gold particles per mm3 of the sol will be

a) 1.9×10<sup>12</sup> b) 6.3×10<sup>14</sup> c) 6.3×10<sup>10</sup> d) 2.4×10<sup>6</sup>

268. According to Freundlich adsorption isotherm, which of the following is correct?

a) <img src="268\_A1.gif" > b) <img src="268\_A2.gif" >

c) <img src="268\_A3.gif" > d) All of the above are correct for different ranges of pressure

269. Catalytic poisoners are usually the same as :

a) Poison for human body

b) Enzyme for human body

c) Vitamins for human body

d) None of the above

270. The reactions in which catalyst and reactant have one phase are known as :

a) Gaseous reactions

b) Homogeneous catalytic reactions

c) Heterogeneous catalytic reactions

d) None of the above

271. Mutarotation of glucose is an example of :

a) Acid-base catalysis

b) Homogeneous catalysis

c) Both (a) and (b)

d) None of these

272. Air can oxidize sodium sulphite in aqueous solution but cannot do so in the case of sodium arsenite. If however, air is passed through a solution containing both sodium sulphite and sodium arsenite then both are oxidized. This is an example of :

a) Positive catalysis b) Negative catalysis c) Induced catalysis d) Autocatalysis

273. Which statement is not correct?

a) All the soaps are detergents

b) Detergents possess cleansing action in addition to surface activity

c) All the surfactants are detergents

d) Surfactants possess surface activity

274. <img src="274\_Q.gif" >

a) <img src="274\_A1.gif"> b) <img src="274\_A2.gif">

c) <img src="274\_A3.gif" > d) <img src="274\_A4.gif">

275. <img src="275\_Q.gif" >

a) Gelatin b) Starch c) Egg albumin d) Gum arabic

276. Which gas is adsorbed strongly by charcoal?

a) CO b) N<sub>2</sub> c) H<sub>2</sub> d) NH<sub>3</sub>

277. Non-electrolyte colloidal surfactants is :

a) C<sub>17 </sub> H<sub>3</sub>5 COONa

b) <img src="277\_A2.gif">

c) C<sub>n</sub> H<sub>(2n+1)</sub> (OCH<sub>2</sub> CH<sub>2</sub> )<sub>x</sub> OH

d) <img src="277\_A4.gif">

278. Which graph is correctly represented the action of catalysts?<br />X+Y⇌A+B

a) <img src="278\_A1.gif"> b) <img src="278\_A2.gif">

c) <img src="278\_A3.gif"> d) All of these

279. In which of the following reactions colloids are not prepared by the double decomposition method?

a) 2H<sub>3</sub> AsO<sub>4</sub>+3H<sub>2</sub> S→As<sub>2</sub> S<sub>3</sub>+6H<sub>2</sub> O b) 3K<sub>4</sub> [Fe(CN)<sub>6</sub> ]+4FeCl<sub>3</sub>→Fe<sub>4</sub> [Fe(CN)<sub>6</sub> ]<sub>3</sub>+12KCl

c) Mg(CN)<sub>2</sub>+H<sub>2</sub> S→HgS+2HCN d) Cu+HgCl<sub>2</sub>→CuCl<sub>2</sub>+Hg

280. Which statement is wrong?

a) Haber’s process of NH<sub>3</sub> requires iron as catalyst

b) Friedel-Crafts reaction requires anhydrous AlCl<sub>3</sub>

c) Hydrogenation of oils requires iron as catalyst

d) Oxidation of SO<sub>2</sub> to SO<sub>3</sub> requires V<sub>2</sub> O<sub>5</sub>

281. Which of the following cannot form the micelles?

a) Sodium benzoate b) Sodium laurylsulphate

c) Sodium alkyl benzene sulphonate d) Sodium oleate

282. Which is an emulsifier?

a) Soap b) Oil c) NaCl d) Water

283. Which of the following has maximum value of flocculating power?

a) Pb<sup>2+</sup> b) Pb<sup>4+</sup> c) Sr<sup>2+</sup> d) Na<sup>+</sup>

284. Which is not lyophilic colloid?

a) Milk b) Gum c) Fog d) blood

285. Which is not correct?

a) Every solid substance can be brought in colloidal state

b) Every solid substance can be made to behave like a lyophobic colloid

c) Addition of electrolytes coagulates the sol

d) Colloidal particles carry charges

286. Which of the following types of catalysis can be explained by the adsorption theory?

a) Homogeneous catalysis

b) Acid-Base catalysis

c) Heterogeneous catalysis

d) Enzyme catalysis

287. Which type of metals form effective catalysts?

a) Alkali metals b) Transition metals c) Alkaline earth metals d) Radioactive metals

288. Milk is an example of which of the following?

a) True solution b) Gel c) Suspension d) Emulsion

289. The decomposition of H<sub>2</sub> O<sub>2</sub> may be checked by adding a small quantity of phosphoric acid. This is an example of :

a) Neutralization b) Negative catalysis c) Positive catalysis d) Catalytic poisoning

290. Zeolites are :

a) Water softener b) Catalyst c) Both (a) and (b) d) None of these

291. Which one of the following is a lyophilic colloidal solution?

a) Smoke b) Gold sol

c) Starch aqueous solution d) Cloud

292. In temporary poisoning, catalytic poisons act by :

a) Coagulating the catalyst

b) Chemically combining with any one of the reactants

c) Chemically combining with the catalyst

d) Getting physically adsorbed on the active centres of the catalyst

293. If x is amount of adsorbate and m is amount of adsorbent, which of the following relations is related to adsorption process?

a) x/m=P ×T

b) x/ m = f(P) at constant T

c) x/ m = f(T) at constant P

d) P = f(T) at constant (x/m)

294. Which is adsorbed into maximum amount by activated charcoal?

a) N<sub>2</sub> b) CO<sub>2</sub> c) Cl<sub>2</sub> d) O<sub>2</sub>

295. Fog is a colloidal solution of

a) Solid in gas b) Liquid in gas c) Gas in liquid d) Gas in solid

296. A catalyst is a substance which :

a) Increases equilibrium constant of reaction

b) Changes the equilibrium conc.of reaction

c) Shortens the time to reach equilibrium

d) Supplies the energy of the reaction

297. Ferric chloride is applied to stop bleeding because

a) Fe<sup>3+</sup> ions coagulate negatively charged blood solution

b) Fe<sup>3+</sup> ions coagulate positively charged blood solution

c) Cl<sup>-</sup> ions coagulate positively charged blood solution

d) Cl<sup>-</sup> ions coagulate negatively charged blood solution

298. The formation of colloid from suspension is

a) Peptisation b) Condensation c) Sedimentation d) Fragmentation

299. Which is not a colloidal solution of gas in liquid?

a) Froths

b) Foams with tiny bubbles

c) Mist

d) Whipped cream

300. In chemical reaction, catalyst

a) Alters the amount of the products b) Lowers the activation energy

c) Decreases the ∆H of forward reaction d) Increases the ∆H of forward reaction

301. Which equation represents Freundlich adsorption isotherm (physical adsorption is basis of this theory)?

a) <img src="301\_A1.gif" >

b) <img src="301\_A2.gif" >

c) <img src="301\_A3.gif" >

d) All of the above

302. The catalyst used in the contact process of sulphuric acid is :

a) Copper

b) Iron

c) Vanadium pentoxide or Pt (asbestos)

d) Ni

303. When adsorption of oxalic acid is carried out on activated charcoal, the activated charcoal is known as

a) Adsorbate b) Adsorbent c) Adsorber d) All of these

304. The basic principal of cottrell’s precipitator is

a) Le-Chatelier’s principle b) Peptisation

c) Neutralisation of charge on colloidal particles d) Scattering of light

305. The equation for Freundlichadsorption isotherm is

a) <img src="305\_A1.gif" > b) x=mkp<sup>1/n</sup> c) x/m=kp<sup>-n</sup> d) All of these

306. Butter is a colloid form in which :

a) Fat is dispersed in solid casein

b) Fat globules are dispersed in water

c) Water is dispersed in fat

d) Suspension of casein is in water

307. Peptization involves

a) Precipitation of colloidal particles

b) Disintegration of colloidal aggregates

c) Evaporation of dispersion medium

d) Impact of molecules of the dispersion medium on the colloidal particles

308. In negative catalysis

a) The speed of chemical reaction slows down

b) Speed of the chemical reaction remain the same

c) Speed of the chemical reaction increases

d) None of the above

309. Gold number :

a) May be defined as the milligram of the dry material of which the hydrophilic sol is prepared and which when added to 10 mL of red gold sol, will prevent it from coagulation on the addition of 1 mL of 10 per cent sodium chloride solution

b) May be defined as the milligram of the dry material of which the hydrophilic sol is prepared and which when added to 1 mL of red gold sol will prevent it from coagulation on the addition of 10 mL of 10 per cent sodium chloride solution

c) May be defined as the milligram of the dry material of which the hydrophilic sol is prepared and which when added to 1 mL of red gold sol will prevent it from coagulation on the addition of 1 mL of 1 per cent sodium chloride solution

d) None of the above

310. Which of the following is not a property of colloidal solution?

a) Heterogeneity b) Particle size > 100 mm

c) Tyndall effect d) Brownian movement

311. Lyophilic sols are more stable than lyophobic sols because :

a) The colloidal particles have positive charge

b) The colloidal particles have no charge

c) The colloidal particles are solvated

d) There are strong electrostatic repulsions between the negatively charged colloidal particles

312. On adding 1 mL of solution of 10% NaCl to 10mL of gold sol in the presence of 0.25g of starch, the coagulation is just prevented. The gold number of starch is

a) 0.25 b) 0.025 c) 2.5 d) 250

313. Associated colloid among the following is

a) Enzyme b) Proteins c) Cellulose d) Sodium stearate

314. KClO<sub>3</sub> on heating decomposes into KCl and O<sub>2</sub>. If some MnO<sub>2</sub> is added the reaction goes much faster because :

a) MnO<sub>2</sub> decomposes to give oxygen

b) MnO<sub>2</sub> provides heat by reacting

c) Better contact is provided by MnO<sub>2</sub>

d) MnO<sub>2</sub> acts as a catalyst

315. Which of the following is incorrect for electrophoresis?

a) In electrophoresis, solution migrates either to anode or to the cathode depending upon the positively or negatively charged solution

b) Electrophoresis is a useful method for finding the charge of a solution

c) Electrophoresis with a high potential is helpful in destroying an emulsion

d) Colloids are uncharged particles and do not migrate towards the electrodes when electric field is applied

316. Blue colour of the sky and red colour of the sunsets are due to

a) Scattering of light from the sun

b) Scattering of light from particles of dust in the atmosphere

c) Refraction of blue light by impurities in sea water

d) Scattering of light due to ozone layer

317. AlCl<sub>3</sub> in Friedel-Crafts reaction acts as :

a) Oxidizing agent b) Reducing agent c) Acid catalyst d) None of these

318. Potassium stearate is obtained by the saponification of an oil or fat. It has the formula<br />CH<sub>3</sub>-(CH<sub>2</sub> )<sub>16</sub> -COO<sup>-</sup> K<sup>+</sup> <br />The molecular has a lyophobic end [CH<sub>3</sub>] and a lyophilic end COO<sup>-</sup> K<sup>+</sup> .<br />Potassium stearate is an example for

a) Lyophobic colloid b) Lyophilic colloid

c) Multimolecular colloid d) Associated colloid or micelle

319. The coagulating power of an electrolyte for arsenioussulphide decreases in order

a) Na<sup>+</sup> >Al<sup>3+</sup> >Ba<sup>2+</sup> b) PO<sub>4</sub><sup>3-</sup> >SO<sub>4</sub><sup>2-</sup> >Cl<sup>-</sup> c) Cl ̅>SO<sub>4</sub><sup>2+</sup> >PO<sub>4</sub><sup>3-</sup> d) Al<sup>3+</sup> >Ba<sup>2+</sup> >Na<sup>+</sup>

320. A biological catalyst is

a) The N<sub>2</sub> molecule b) An enzyme c) An amino acid d)

321. Which of the following is most suitable to disperse benzene in water?

a) <img src="321\_A1.gif" >

b) <img src="321\_A2.gif" >

c) <img src="321\_A3.gif" >

d) <img src="321\_A4.gif" >

322. In colloid particles, range of diameter is

a) 1 to 100 nm b) 1 to 1000 cm c) 1 to 1000 mm d) 1 to 100 km

323. Catalysis is a phenomenon in which

a) A substance alters the speed of the chemical reaction

b) Heat is evolved in a chemical reaction

c) The reaction is induced by light

d) None of the above

324. Among the following, the surfactant that will form micelles in aqueous solution at the lowest molar concentration at ambient conditions, is

a) CH<sub>3</sub> (CH<sub>2</sub> )\_15 N<sup>+</sup> (CH<sub>3</sub> )<sub>3</sub> Br<sup>-</sup> b) CH<sub>3</sub> (CH<sub>2</sub> )<sub>11</sub> OSO<sub>3</sub><sup>-</sup> Na<sup>+</sup>

c) CH<sub>3</sub> (CH<sub>2</sub> )<sub>6</sub> COO<sup>-</sup> Na<sup>+</sup> d) CH<sub>3</sub> (CH<sub>2</sub> )<sub>11</sub> N<sup>+</sup> (CH<sub>3</sub> )<sub>3</sub> Br<sup>-</sup>

325. When a sulphur sol is evaporated sulphur is obtained. On mixing with water sulphur sol is not formed. The sol is

a) Lyophilic b) Reversible c) Hydrophobic d) Hydrophilic

326. Which is correct in the case of van der Waals’ adsorption?

a) High temperature, low pressure b) Low temperature, high pressure

c) Low temperature, low pressure d) All of the above

327. Sulphur colloid is prepared by

a) Mechanical dispersion b) Oxidation

c) Electrical dispersion d) Reduction

328. The precipitate of Fe(OH)<sub>3</sub> in presence of water containing some FeCl<sub>3</sub> becomes colloidal on gentle shaking. This is an example of

a) Electroosmosis b) Coagulation c) Peptization d) Electrophoresis

329. Cod liver oil is

a) An emulsion b) Solution c) Colloidal solution d) Suspension

330. Animal charcoal is used in decolourisingcolour of liquids because it is a good

a) Adsorbate b) Adsorbent c) Oxidising agent d) Reducing agent

331. Which of the following electrolyte will have maximum flocculation value for Fe(OH)<sub>3</sub> sol?

a) NaCl b) Na<sub>2</sub> S c) (NH<sub>4</sub> )<sub>3</sub> PO<sub>4</sub> d) K<sub>2</sub> SO<sub>4</sub>

332. Which of the following is a lyophobic colloidal solution?

a) Aqueous starch solution b) Aqueous protein solution

c) Gold sol d) Polymer solutions in some organic solvents

333. Which is an example of auto-catalyst?

a) Hydrolysis of methyl acetate

b) Decomposition of TNG

c) Oxidation of oxalic acid by KMnO<sub>4</sub>

d) All of the above

334. Pd can adsorb in the space between its atoms, 900 times its volume of hydrogen. This process is called

a) Absorption b) Desorption c) Adsorption d) Chemisorptions

335. The gold number of gelatin, haemoglobin and sodium acetate are 0.005, 0.05 and 0.7 respectively. The protective actions will be in order

a) Gelatin <haemoglobin< sodium acetate b) Gelatin >haemoglobin> sodium acetate

c) Haemoglobin> gelatin > sodium acetate d) Sodium acetate > gelatin >haemoglobin

336. A catalyst is a substance which

a) Increases the equilibrium constant of the reaction

b) Increases equilibrium concentration of products

c) Does not alter the reaction mechanism

d) Changes the activation energy of the reaction

337. The extent of adsorption of a gas on a solid depends on

a) Nature of the gas b) Pressure of the gas

c) Temperature of the gas d) All of these

338. Which of the following statements is false for enzyme?

a) pH affects their work b) Temperature affect their work

c) They always increase Ea d) Their reactivity is specific

339. Fog is a colloidal solution of

a) Liquid particles dispersed in gas b) Gaseous particles dispersed in a liquid

c) Solid particles dispersed in liquid d) Solid particles dispersed in gas

340. The activity and selectivity of zeolites as catalyst is based on :

a) Their pore size

b) Size of their cavities on the surface

c) Both (a) and (b)

d) None of the above

341. Gold number gives

a) The amount of gold present in the colloid

b) The amount of gold required to protect the colloid

c) The amount of gold required to break the colloid

d) None of the above

342. Amongst the following chemical reaction, the one representing homogeneous catalysis is

a) <img src="342\_A1.gif" > b) <img src="342\_A2.gif" >

c) <img src="342\_A3.gif" > d) <img src="342\_A4.gif" >

343. Which of the following represents the phenomenon of syneresis?

a) Formation of a sol from a gel b) Migration of colloid in an electric field

c) Separation of the dispersed phase from the gel d) Process of converting gel into true solution

344. Silica get is commonly used as :

a) Wetting agent b) Drying agent c) Solvent d) catalyst

345. Which has least gold number?

a) Gelatin b) Starch c) Albumin d) Blood

346. The disperse phase in colloidal iron (III) hydroxide and colloidal gold is positively and negatively charged, respectively. Which of the following statements is not correct?

a) Coagulation in both sols can be brought about by electrophoresis

b) Mixing the sols has no effect

c) Sodium sulphate solution causes coagulation in both sols

d) Magnesium chloride solution coagulates the gold sol more readily than the iron (III) hydroxide sol

347. Which is not correct regarding the adsorption of a gas on surface of a solid?

a) Enthalpy and entropy change is negative

b) Adsorption is more for some specific substance

c) On increasing temperature, adsorption increase progressively

d) It is a reversible reaction

348. Efficiency of a catalyst depends on its:

a) Particle size b) Solubility c) Molecular weight d) None of these

349. Choose the incorrect statement

a) If the mutual affinity between the dispersed phase and the dispersion medium is small, the system will be lyophobic

b) If the mutual affinity between the dispersed phase and dispersion medium is great, the system will be lyophilic

c) In a system, when water is the dispersion medium, the system may be hydrophobic or hydrophilic

d) Ionic surfactant molecules cluster together in clumps

350. The colloidal system of a solid dispersed in liquid medium, is called

a) Aerosol b) Sol c) Gel d) Foam

351. Which of the following statements is incorrect?

a) Emulsions are prepared by shaking two liquid components, say oil and water and adding some emulsifying agent

b) Water-in-oil emulsions are formed when the emulsifying agent at the interface is chiefly in the water phase

c) Water-in-oil emulsions are formed when the emulsifying agent at the interface is chiefly in the oil phase

d) Gems and gels mixed together to give emulsion

352. Hydrolysis of cane sugar is catalysed by :

a) H<sup>+</sup> b) Mineral acids c) Enzymes d) All of these

353. When a catalyst increases the rate of a chemical reaction, the rate constant :

a) Increases b) Decreases c) Remains constant d) Becomes infinite

354. The charge on As<sub>2</sub> S<sub>3</sub> sol is due to the adsorption of :

a) H<sup>+</sup> b) OH<sup>-</sup> c) O<sub>2</sub><sup>-</sup> d) S<sup>2-</sup>

355. Platinum is not used as a catalyst in the :

a) Oxidation of CH<sub>3</sub> OH to HCHO

b) Oxidation of SO<sub>2</sub> to SO<sub>3</sub>

c) Combination of H<sub>2</sub> and I<sub>2</sub> to form HI

d) Synthesis of NH<sub>3</sub> from N<sub>2</sub> and H<sub>2</sub>

356. A catalyst alter the rate of reaction by

a) Altering enthalpy b) Altering internal energy

c) Altering energy of activation d) All of the above

357. The name aquadag refers for :

a) Cu in water sol b) Pt in water sol c) Graphite in water sol d) None of these

358. Active charcoal is a good catalyst because

a) Made up of carbon atoms b) Is very reactive

c) Has more adsorption power d) Has inert nature toward reagent

359. An aerosol is a

a) Dispersion of a solid or liquid in a gas b) Dispersion of a solid in a liquid

c) Dispersion of a liquid in a liquid d) Solid solution

360. Which of the following reaction is an example for homogeneous catalysis?

a) <img src="360\_A1.gif" > b) <img src="360\_A2.gif" >

c) <img src="360\_A2.gif" > d) <img src="360\_A4.gif" >

361. The correct statement in case of milk :

a) Milk is an emulsion of fat in water

b) Milk is an emulsion of protein in water

c) Milk is stabilized by protein

d) Milk is stabilized by fat

362. Which of the following acts as protective colloid?

a) Silica gel b) Gelatin c) Sodium acetate d) None of these

363. When dilute aqueous solution of AgNO<sub>3</sub>(excess) is added to KI solution, positively charged sol of AgI is formed due to adsorption of of

a) NO<sub>3</sub><sup>-</sup> b) O<sub>2</sub><sup>-</sup> c) Ag<sup>+</sup> d) K<sup>+</sup>

364. Colloidal solution of arsenioussulphide can be prepared by :

a) Electrodispersion method

b) Peptization

c) Double decomposition

d) hydrolysis

365. Chemisorption is :

a) Multimolecular in nature

b) Reversible

c) Often highly specific and directional

d) Not very specific

366. Which one of the following statements is incorrect about enzyme catalysis?

a) Enzymes are denaturated by ultraviolet rays and at high temperature

b) Enzymes are least reactive at optimum temperature

c) Enzymes mostly proteinous in nature

d) Enzyme action is specific

367. Alum purify muddy water by

a) Dialysis b) Adsorption

c) Coagulation d) Forming a true solution

368. The continuous phase contains the dispersed phase throughout, example is

a) Water in milk b) Fat in milk

c) Water droplets in mist d) Oil in water

369. A catalyst is used

a) To balance the reaction b) To vaporise the compound

c) To alter the velocity of reaction d) To kill the enzymes

370. In the formation of SO<sub>3</sub> by SO<sub>2</sub> and O<sub>2</sub> using NO as catalyst, the catalytic action of NO is evidenced by :

a) Green vapours b) Violet vapours c) Brown vapours d) None of these

371. A catalytic poison is

a) Heterogeneous catalyst b) Autocatalyst

c) Induced catalyst d) An inhibitor

372. Which does not show Tyndall effect?

a) Emulsion b) Blood c) Milk d) Sugar solution

373. Catalytic poisoners act by :

a) Coagulating the catalyst

b) Getting adsorbed on the active centres on the surface of catalyst

c) Chemical combination with any one of the reactants

d) None of the above

374. Peptization is a process of :

a) Precipitating colloidal particles

b) Purifying colloidal particles

c) Dispersing the precipitate into colloidal state

d) None of the above

375. Gas masks containing activated charcoal to remove poisonous gases from atmosphere acts on the principle of :

a) Adsorption b) Absorption c) Sorption d) All of these

376. Pick out the statement which is not relevant in the discussion of colloids.

a) Sodium aluminium silicate is used in the softening of hard water

b) Potash alum is used in shaving rounds and as a styptic in medicine

c) Artificial rain is caused by throwing electrified sand on the clouds from an aeroplane

d) Deltas are formed at place where the river pours its water into the sea

377. Some types of gels like gelatin liquefy on shaking, thereby changing into sols. The sols on standing changes back into gel. The process is known as :

a) Synerisis b) Thixotropy c) Peptisation d) Imbibition

378. Which is an example of negative catalysis?

a) <img src="378\_A1.gif" > b) <img src="378\_A2.gif" >

c) <img src="378\_A3.gif" > d) <img src="378\_A4.gif" >

379. The decomposition of hydrogen peroxide can be slowed by the addition of acetamide. The latter acts as a

a) Detainer b) Stopper c) Promoter d) Inhibitor

380. Catalyst :

a) Lowers activation energy

b) Increase activation energy

c) May increase or may decrease activation energy

d) Brings out equilibrium

381. If dispersion medium is water, the colloidal system is called :

a) Sol b) Aerosol c) Organosol d) Aquasol

382. The phenomenon in which adsorption and absorption takes place simultaneously is called:

a) Desorption

b) Sorption

c) Both (a) and (b)

d) None of these

383. Adsorption is accompanied by

a) ∆S of system is negative b) Decrease in enthalpy of system

c) T∆S for the process is negative d) All of the above

384. Which is not a property of hydrophilic sols?

a) High concentrations of dispersed phase can be easily attained

b) Coagulation is reversible

c) Viscosity and surface tension are about the same as of dispersion medium

d) The charge of the particle depends on the pH values of the dispersion medium; it may be positive, negative

385. Which one of the following does not involve coagulation?

a) Formation of delta regions b) Peptization

c) Treatment of drinking water by potash alum d) Clotting of blood by the use of ferric chloride

386. Which is the wrong pair?

(i) Starch solution : sol (ii) Aq. NaCl : true solution (iii) milk : emulsion (iv) Aq. BaSO<sub>4</sub> : true solution

a) (i) b) (iii) c) (iv) d) (ii)

387. Which reaction gives colloidal solution?

a) Cu+HgCl<sub>2</sub> ⟶CuCl<sub>2</sub>+Hg

b) 2HNO<sub>3</sub>+3H<sub>2</sub> S ⟶3S+4H<sub>2</sub> O+2NO

c) 2Mg+CO<sub>2</sub> ⟶2MgO+C

d) Cu+CuCl<sub>2</sub> ⟶Cu<sub>2</sub> Cl<sub>2</sub>

388. Which is universally correct for catalyst?

a) A catalyst remains unchanged chemically at the end of chemical reaction

b) A catalyst takes part in a chemical reaction

c) All kinds of catalysts undergo catalytic poisoning

d) A catalyst physically changes at the end of reaction

389. A catalyst

a) Lowers the activation energy b) Changes the rate constant

c) Changes the product d) Itself destroys in the reaction

390. Hydrolysis of maltose (C<sub>12</sub> H<sub>2</sub>2 O<sub>11</sub> ) by maltase gives :

a) Glucose b) Fructose c) Both (a) and (b) d) None of these

391. Platinized asbestos used as a catalyst in the manufacture of H<sub>2</sub> SO<sub>4</sub> is an example of :

a) Heterogeneous catalyst

b) Autocatalyst

c) Homocatalyst

d) Induced catalyst

392. In Haber’s process for manufacture of ammonia, the reaction is usually carried at about 500℃. If a temperature of about 250℃ was used then

a) A catalyst would be of no use at all at this temperature

b) The rate of formation of ammonia would be too slow

c) No ammonia would be formed at all

d) The percentage of ammonia in the equilibrium mixture would be too low

393. Solvent hating colloids are :

a) Lyophobic b) Hydrophilic c) Lyophilic d) None of these

394. <img src="394\_Q.gif" >

a) C>B>A b) A>B>C c) A=B=C d) B>A>C

395. A catalyst increases the rate of reaction because it :

a) Increases the activation energy

b) Decrease the energy barrier for reaction

c) Decreases the collision diameter

d) Increase the temperature coefficient

396. Pick out the wrong statement.

a) Micelles are formed by surfactant molecules above the Critical Micelle Concentration (CMC)

b) The conductivity of a solution having surfactant molecules decreases sharply at the (CMC)

c) Lower is the CMC of detergent, more is its detergency

d) Cleansing action is not related to micelles

397. Catalyst only

a) Decreases activation energy b) Increases activation energy

c) Bring about equilibrium d) None of the above

398. A precipitate is changed to colloidal solution by the following process

a) Dialysis b) Ultrafiltration c) Peptization d) Electrophoresis

399. The Brownian movement is due to

a) Enthalpy change during the formation of colloids

b) Attractive forces between the colloidal particles and the molecules of dispersion medium

c) The impact of molecules of the dispersion medium on the colloidal particles

d) The movement of positively charged colloidal particle to negatively charged particle

400. Catalyst used in Haber’s process is

a) Nickel powder b) Iron and molybdenum powder

c) Black lead d) Iodine

401. The capacity of an ion to coagulate a colloidal solution depends on :

a) Its shape

b) Amount of its charge

c) The sign of charge

d) Both amount and sign of the charge

402. The ion that is more effective for the coagulation of As<sub>2</sub> S<sub>3</sub> sol is

a) Ba<sup>2+</sup> b) Na<sup>+</sup> c) PO<sub>4</sub><sup>3-</sup> d) Al<sup>3+</sup>

403. The reaction rate at a given temperature is slower when :

a) The energy of activation is higher

b) The energy of activation is lower

c) Entropy changes

d) Initial concentration of the reactants remains constant

404. Hardy-Schulze law states that

a) Higher the charge of the coagulating ions, greater its coagulating power, having opposite sign of solution

b) Solution must have zero gold number

c) Disperse phase and dispersion medium must be of the same sign

d) Micelles coagulate in presence of surfactants

405. Choose the intrinsic colloids among the following

a) Sulphur b) Arsenic sulphide c) Egg albumen d) Ferric hydroxide

406. Enzymes are :

a) Substances made by chemists to activate washing powder

b) Very active vegetable catalysts

c) Catalysts found in organisms

d) Synthetic catalysts

407. Whenever, gels are placed with their dispersed phase, they :

a) Swells up

b) Show intake of the dispersed phase

c) Develops imbibition

d) All of the above

408. Which forms multi molecular layers during adsorption?

a) Physical adsorption

b) van der Waals’ adsorption

c) Freundlich adsorption

d) All of the above

409. Enzyme catalysts are :

a) Highly specific in nature

b) Non-specific

c) Solids

d) Always liquid

410. A catalyst :

a) Increases the average kinetic energy of the reacting molecules

b) Increases the activation energy

c) Alters the reaction mechanism

d) Increases the frequency of collisions of the reacting species

411. Micelle systems are used in

a) Gums b) Magnetic separation process

c) Petroleum recovery d) All of the above

412. Enzymes are known to increase the rate of reaction by :

a) 10<sup>2</sup> times b) 10<sup>-2</sup> times c) 10<sup>5</sup> times d) 10<sup>12</sup> times

413. A catalyst promoter

a) Increases the speed of the reaction b) Activates the action of a catalyst

c) Starts a chemical reaction d) None of the above

414. Soaking of water by a sponze is an example of :

a) Physical adsorption b) Chemical adsorption c) Absorption d) None of these

415. Indicate the correct statement

a) In chemisorptions, there is no disruption of bonding in an adsorbed molecule

b) The rate of decomposition of the substance adsorbed on a surface depends on the surface coverage

c) In heterogeneous catalytic reaction no surface reaction occurs

d) Increase in surface area of catalyst reduces the surface phase reactions

416. Cellulose dispersed in ethanol is called

a) Emulsion b) Collodion c) Micelle d) Hydrophilic sol

417. A liquid aerosol is a colloidal system of :

a) A liquid dispersed in a solid

b) A liquid dispersed in a gas

c) A gas dispersed in a liquid

d) A solid dispersed in a gas

418. The disperse phase, dispersion medium and nature of colloidal solution (lyophilic or lyophobic) of ‘gold sol’ respectively are

a) Solid, Solid, lyophobic b) Liquid, Liquid, Lyophobic

c) Solid, Liquid, Lyophobic d) Solid, Liquid, Lyophilic

419. An emulsion is a colloidal dispersion of

a) A liquid in a gas b) A liquid in a liquid c) A solid in a liquid d) A gas in a solid

420. Blue colour of water in sea is due to

a) Refraction of blue light by impurities b) Refraction of blue sky by water

c) Scattering of light by water d) None of the above

421. Which of the following is an example of biochemical catalyst?

a) Platinium gauze b) Oxides of Nitrogen

c) Zymase d) V<sub>2</sub> O<sub>5</sub>

422. Which one of the following statements is incorrect?

a) Adsorption always leads to a decrease in enthalpy and entropy of the system

b) Adsorption arises due to unsaturation of valence forces of atoms or molecules on the surface

c) Adsorption increases with rise in the temperature

d) Adsorption decreases the surface energy

423. In emulsion the dispersed phase and dispersion medium are :

a) Both solids b) Both liquids c) A solid and liquid d) A liquid and solid

424. Which graph represents auto catalysis?

a) <img src="424\_A1.gif" > b) <img src="424\_A2.gif" > c) <img src="424\_A3.gif" > d) <img src="424\_A4.gif" >

425. The Rubin number which was proposed by Ostwald as an alternative to the Gold number in order to measure the protective efficiency of a lyophilic colloid may be defined as the

a) Mass in milligrams of a colloid per 100 cc of solution which just prevents the colour change of standard sol of dye Congo-Rubin from red to violet when 0.16 g eq. KCl is added to it

b) Mass in grams of a colloid per 100 cc of solution which just prevents the colour change of standard sol of dye Congo-Rubin from red to violet when 0.1 M KCl is added to it

c) Mass in grams of a colloid per 100 cc of solution which just prevents the colour change of standard sol of dye Congo-Rubin from red to violet when 0.2 M KCl is added to it

d) Mass in grams of a colloid per 100 cc of solution which just prevents the colour change of standard sol of dye Congo-Rubin from red to violet when 1 M KCl is added to it

426. Which of the following is applicable to chemisorption?

a) It occurs at high temperature

b) There is formation monomolecular layer

c) It involves the formation of chemical bonds between adsorbent and adsorbate

d) All of the above

427. Which of the following is used to provide smoke screens :

a) Calcium phosphide b) Zinc sulphate c) Sodium carbonate d) Zinc phosphide

428. The process of froth floatation and chromatography are based on :

a) Emulsification b) Adsorption c) Absorption d) Either of them

429. The efficiency of enzyme catalysis is due to its capacity to

a) From a strong enzyme-substrate complex

b) Change the shape of the substrate

c) Lower the activation energy of the reaction

d) Form a colloidal solution in water

430. Which acts as a promoter for nickel in the hydrogenation of oils?

a) Cu b) Mo c) Fe d) Pt

431. In Langmuir’s model of adsorption of a gas on a solid surface

a) The rate of dissociation of adsorbed molecules from the surface does not depend on the surface covered

b) The adsorption at a single site on the surface may involve multiple molecules at the same time

c) The mass of gas striking a given area of surface is proportional to the pressure of the gas

d) The mass of gas striking a given area of surface is independent of the pressure of the gas

432. Cloud bursts due to :

a) Attraction towards the electrical charges on the earth

b) Large amount of water present in the cloud

c) Dense clouds are present in the upper atmosphere

d) Mutual discharge of oppositely charged clouds resulting in the coagulation

433. Bleeding due to a cut can be stopped by applying ferric chloride solution in the laboratory. This is due to

a) Coagulation of negatively charged blood particles by Fe<sup>3+</sup> ions. b) Coagulation of positively charged blood particles by Cl<sup>-</sup> ions.

c) Reaction taking place between ferric ions and the haemoglobin forming a complex d) Common element, iron, in both FeCl<sub>3</sub> amd haemoglobin

434. Surface tension of lyophilic sols is :

a) Lower than H<sub>2</sub> O b) More than H<sub>2</sub> O c) Equal to H<sub>2</sub> O d) None of these

435. Which is used in the Haber’s process for the manufacture of NH<sub>3</sub>?

a) Al<sub>2</sub> O<sub>3</sub> b) Fe + Mo c) CuO d) Pt

436. Tails of comets are visible due to :

a) Tyndall effect b) Reflection c) Brownian motion d) None of these

437. The minimum flocculation power of KCl,MgCl<sub>2</sub>,CrCl<sub>3</sub> and SnCl<sub>4</sub> for a positively charged sol are in the order of

a) KCl<MgCl<sub>2</sub><CrCl<sub>3</sub><SnCl<sub>4</sub> b) KCl=MgCl<sub>2</sub>=CrCl<sub>3</sub>=SnCl<sub>4</sub>

c) MgCl<sub>2</sub><KCl<CrCl<sub>3</sub><SnCl<sub>4</sub> d) SnCl<sub>4</sub><CrCl<sub>3</sub><MgCl<sub>2</sub><KCl

438. Smoke (a negatively charged colloid) is an example of :

a) Gas dispersed in liquid

b) Gas dispersed in solid

c) Solid dispersed in gas

d) Solid dispersed in solid

439. Which one of the following is an example for homogeneous catalysis?

a) Manufacture of sulphuric acid by Contact process

b) Manufacture of ammonia by Haber’s process

c) Hydrolysis of sucrose in presence of dilute hydrochloric acid

d) Hydrogenation of oil

440. Which is not true in case of catalyst?

a) The catalyst is unchanged chemically at the end of a reaction

b) The catalyst accelerates the reaction

c) In a reversible reaction, the catalyst alters the equilibrium position

d) A small amount of catalyst is often sufficient to bring about a large change in reaction

441. Which of the following is not the property of hydrophilic sol.?

a) Coagulation is reversible b) Viscosity and surface tension are equal to that of water

c) Charge on the particle depends upon pH of the medium. It may be positive, negative or zero d) Dispersed phase acquires higher concentration easily

442. Point out the false statement

a) The size range of colloidal particles is 10-2000Å

b) Colloidal solutions are homogeneous systems

c) Colloids carry charge

d) Colloids show Tyndall effect

443. Soaps are generally prepared from :

a) Linseed oil b) Coconut oil c) Groundnut oil d) Mustard oil

444. Which of the following is not a surfactant :

a) <img src="444\_A1.gif" >

b) CH<sub>3</sub> (CH<sub>2</sub> )<sub>14</sub> CH<sub>2</sub> NH<sub>2</sub>

c) CH<sub>3</sub> (CH<sub>2</sub> )<sub>16</sub> CH<sub>2</sub> OSO<sub>2</sub><sup>-</sup> Na<sup>+</sup>

d) Decylpyridinium chloride

445. A catalyst for a reversible reaction is a substance that :

a) Supplies energy to the reaction

b) Decreases the time to reach equilibrium

c) Increases the equilibrium concentration of the products

d) Change the equilibrium constant of the reaction

446. In a reversible reaction, a catalyst

a) Increases the rate of forward reaction only

b) Increases the rate of forward reaction and decreases that of backward reaction

c) Increases the rate of forward and backward reaction equally

d) Increases the rate of forward reaction to great extent than that of backward reaction

447. The concentration of electrolyte required to coagulate a given amount of As<sub>2</sub> S<sub>3</sub> sol is minimum in the case of

a) Magnesium nitrate b) Potassium nitrate c) Potassium sulphate d) Aluminium nitrate

448. Paste is

a) Suspension of solid in a liquid b) Mechanical dispersion of a solid in liquid

c) Colloidal solution of a solid in solid d) None of the above

449. Which of the following is not an emulsion?

a) Butter b) Ice cream c) Milk d) Clouds

450. Emulsifying agents generally used are :

a) Ions with negative charge

b) Surface active agents

c) Ions with a positive charge

d) Lyophobic substances

451. The catalyst used in lead chamber process of H<sub>2</sub> SO<sub>4</sub> manufacture is

a) Platinum b) Oxides of nitrogen

c) Nickel d) Vanadium compounds

452. Hydrolysis of sucrose (C<sub>12</sub> H<sub>2</sub>2 O<sub>11</sub> ) by invertase gives :

a) Glucose b) Fructose c) Both(a) and (b) d) None of these

453. Which one of the following characteristics is not correct for physical adsorption?

a) Adsorption on solids is reversible

b) Adsorption increases with increase in temperature

c) Adsorption is spontaneous

d) Both enthalpy and entropy of adsorption are negative

454. Which of the following curves do not correspond to adsorption isotherms?

a) <img src="454\_A1.gif" > b) <img src="454\_A2.gif" >

c) <img src="454\_A3.gif" > d) <img src="454\_A4.gif" >

455. In a reversible reaction, the catalyst

a) Increases the activation energy of the backward reaction

b) Increases the activation energy of the forward reaction

c) Decreases the activation energy of both forward and backward reaction

d) Decreases the activation energy of forward reaction

456. Which acts as poison to platinum (a catalyst) in the manufacture of H<sub>2</sub> SO<sub>4</sub> by contact process?

a) Arsenious oxide b) CO<sub>2</sub> c) CO d) Sodium sulphide

457. Which among the following statements are correct with respect to adsorption of gases on a solid?<br /> (i)The extent of adsorption is equal to Kp!n according to Freundlich isotherm. <br />(ii)The extent of adsorption is equal to Kp<sup>(1/n)</sup> according to Freundlich isotherm. <br />(iii)The extent of adsorption is equal to (1+bp)/ap according to Langmuir isotherm. <br />(iv) The extent of adsorption is equal to ap/(1+bp)according to Langmuir isotherm. <br />(v)Freundlich adsorption isotherm fails at low pressure, where k,a and b are constant and p is pressure

a) (i) and (iii) b) (i) and (iv) c) (ii) and (iii) d) (ii) and (iv)

458. Which of the following is adsorbed greatly by activated charcoal?

a) SO<sub>2</sub> b) CO<sub>2</sub> c) NO<sub>2</sub> d) Water vapours

459. Choose macromolecular colloids among the following

a) Soap b) Detergent

c) Starch and cellulose d) All of these

460. In aerosol, the dispersion medium is

a) Solid b) Liquid c) Gas d) Any of these

461. Which acts as poison for Pd-charcoal in Lindlar’s catalyst?

a) BaSO<sub>4</sub> b) Quinoline c) Both (a) and (b) d) None of these

462. Which acts as negative catalyst?

a) Lead tetraethyl as antiknock compound

b) Glycerol in decomposition of H<sub>2</sub> O<sub>2</sub>

c) Ethanol in oxidation of chloroform

d) All of the above

463. From the following which is not a surface phenomenon?

a) Corrosion b) Crystallisation

c) Heterogenous catalysis d) None of the above

464. Hydrolysis of protein in stomach and in intestine takes place due to action of enzyme :

a) Pepsin in stomach, trypsin in intestine

b) Trypsin in stomach, pepsin in intestine

c) Both (a) and (b)

d) None of the above

465. Which of the following is less than zero during adsorption?

a) ∆G b) ∆S c) ∆H d) All of these

466. Which one of the following methods, does not give the sol?

a) Electrophoresis b) Peptization c) Electrodispersion d) Solvent exchange