

NEET SURFACE CHEMISTRY — PYQS

Max. Marks: 108

Questions: 27

Section A (MCQ) — 27 questions

Q.1 Which one is an example of heterogeneous catalysis? [NEET (UG) 2023]

- (1) Hydrolysis of sugar catalysed by H^+ ions.
- (2) Decomposition of ozone in presence of nitrogen monoxide.
- (3) Combination between dinitrogen and dihydrogen to form ammonia in the presence of finely divided iron.
- (4) Oxidation of sulphur dioxide into sulphur trioxide in the presence of oxides of nitrogen.

 Scan or tap for the
full solution


Q.2 Pumice stone is an example of - [NEET (UG) 2023]

- (1) gel (2) solid sol (3) foam (4) sol

 Scan or tap for the
full solution


Q.3 Given below are two statements

Statement-I: In the coagulation of a negative sol, the flocculating power of the three given ions is in the order $Al^{3+} > Ba^{2+} > Na^+$

Statement-II: In the coagulation of a positive sol, the flocculating power of the three given salts is in the order $NaCl > Na_2SO_4 > Na_3PO_4$

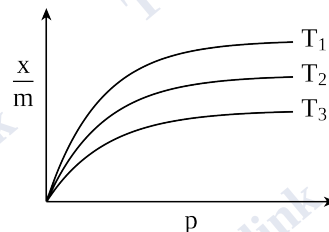
In the light of the above statements, choose the most appropriate answer from the options given below

[NEET (UG) 2022]

- (1) Both Statement-I and Statement-II are correct.
- (2) Both Statement-I and Statement-II are incorrect.
- (3) Statement-I is correct but Statement-II is incorrect.
- (4) Statement-I is incorrect but Statement-II is correct.

 Scan or tap for the
full solution


Q.4 Shown below are adsorption isotherms for a gas 'X' at temperatures T_1 , T_2 and T_3 :



p and $\frac{x}{m}$ represent pressure and extent of adsorption, respectively. The correct order of temperatures for the given adsorption is :

[NEET (UG) 2022 (Phase 2)]

- (1) $T_1 = T_2 > T_3$
- (2) $T_1 > T_2 > T_3$
- (3) $T_3 > T_2 > T_1$
- (4) $T_1 = T_2 > T_3$

 Scan or tap for the
full solution


Q.5 The right option for the statement "Tyndall effect is exhibited by", is : [NEET (UG) 2021]

- (1) Urea solution
- (2) NaCl solution
- (3) Glucose solution
- (4) Starch solution

 Scan or tap for the
full solution


Q.6 Measuring Zeta potential is useful in determining which property of colloidal solution? [NEET (UG) 2020]

- (1) Solubility
- (2) Stability of the colloidal particles
- (3) Size of the colloidal particles
- (4) Viscosity

 Scan or tap for the
full solution


Q.7 Which mixture of the solution will lead to the formation of negatively charged colloidal $[AgI]^-$ sol. ? [NEET (UG) 2019]

- (1) 50 mL of 2 M $AgNO_3$ + 50 mL of 1.5 M KI
- (2) 50 mL of 0.1 M $AgNO_3$ + 50 mL of 0.1 M KI
- (3) 50 mL of 1 M $AgNO_3$ + 50 mL of 1.5 M KI
- (4) 50 mL of 1 M $AgNO_3$ + 50 mL of 2 M KI

 Scan or tap for the
full solution


Q.8 On which of the following properties does the coagulating power of an ion depend? [NEET 2018]

- (1) The magnitude of the charge on the ion alone
- (2) Size of the ion alone
- (3) Both magnitude and sign of the charge on the ion
- (4) The sign of charge on the ion alone

Scan or tap for the full solution



Q.9 Which one of the following statements is not correct? [NEET 2017]

- (1) The value of equilibrium constant is changed in the presence of a catalyst in the reaction at equilibrium.
- (2) Enzymes catalyse mainly bio-chemical reactions.
- (3) Coenzymes increase the catalytic activity of enzyme.
- (4) Catalyst does not initiate any reaction.

Scan or tap for the full solution



Q.10 Fog is a colloidal solution of [NEET 2016 (Phase 1)]

- (1) solid in gas
- (2) gas in gas
- (3) liquid in gas
- (4) gas in liquid.

Scan or tap for the full solution



Q.11 Which one of the following characteristics is associated with adsorption? [NEET 2016 (Phase 1)]

- (1) ΔG and ΔH are negative but ΔS is positive.
- (2) ΔG and ΔS are negative but ΔH is positive.
- (3) ΔG is negative but ΔH and ΔS are positive.
- (4) ΔG , ΔH and ΔS all are negative.

Scan or tap for the full solution



Q.12 The coagulation values in millimoles per litre of the electrolytes used for the coagulation of As_2S_3 are given below :

- I. (NaCl) = 52,
- II. ($BaCl_2$) = 0.69,
- III. ($MgSO_4$) = 0.22

The correct order of their coagulating power is

[NEET 2016 (Phase 2)]

- (1) I > II > III
- (2) II > I > III
- (3) III > II > I
- (4) III > I > II

Scan or tap for the full solution



Q.13 Which property of colloidal solution is independent of charge on the colloidal particles?

[AIPMT 2015 (Cancelled)]

- (1) Electro-osmosis
- (2) Tyndall effect
- (3) Coagulation
- (4) Electrophoresis

Scan or tap for the full solution



Q.14 Which of the following statements is correct for the spontaneous adsorption of a gas? [AIPMT 2014]

- (1) ΔS is negative and, therefore, ΔH should be highly positive.
- (2) ΔS is negative and, therefore, ΔH should be highly negative.
- (3) ΔS is positive and, therefore, ΔH should be negative.
- (4) ΔS is positive and, therefore, ΔH should also be highly positive.

Scan or tap for the full solution



Q.15 Which property of colloids is not dependent on the charge on colloidal particles? [AIPMT 2014]

- (1) Coagulation
- (2) Electrophoresis
- (3) Electro-osmosis
- (4) Tyndall effect

Scan or tap for the full solution



Q.16 In Freundlich adsorption isotherm, the value of $\frac{1}{n}$ is

[AIPMT 2012 (Prelims)]

- (1) between 0 and 1 in all cases
- (2) between 2 and 4 in all cases
- (3) 1 in case of physical adsorption
- (4) 1 in case of chemisorption.

Scan or tap for the full solution



Q.17 Which one of the following statements is incorrect about enzyme catalysis? [AIPMT 2012 (Prelims)]

- (1) Enzymes are mostly proteinous in nature.
- (2) Enzyme action is specific.
- (3) Enzymes are denatured by ultraviolet rays and at high temperature.
- (4) Enzymes are least reactive at optimum temperature.

Scan or tap for the full solution



Q.18 The protecting power of lyophilic colloidal sol is expressed in terms of [AIPMT 2012 (Prelims)]

- (1) coagulation value
- (2) gold number
- (3) critical micelle concentration
- (4) oxidation number

Scan or tap for the full solution



Q.19 If x is amount of adsorbate and m is amount of adsorbent, which of the following relations is not related to adsorption process? [AIPMT 2011 (Prelims)]

- (1) $x/m = f(p)$ at constant T
- (2) $x/m = f(T)$ at constant p
- (3) $p = f(T)$ at constant (x/m)
- (4) $\frac{x}{m} = p \times T$

Scan or tap for the full solution



Q.20 The Langmuir adsorption isotherm is deduced using the assumption [AIPMT 2007]

- (1) the adsorption sites are equivalent in their ability to adsorb the particles
- (2) the heat of adsorption varies with coverage
- (3) the adsorbed molecules interact with each other
- (4) the adsorption takes place in multilayers

Scan or tap for the full solution



Q.21 A plot of $\log(x/m)$ versus $\log p$ for the adsorption of a gas on a solid gives a straight line with slope equal to [AIPMT 2006]

- (1) $\log K$ (2) $-\log K$ (3) n (4) $1/n$

Scan or tap for the full solution



Q.22 Which one of the following forms micelles in aqueous solution above certain concentration? [AIPMT 2005]

- (1) Dodecyl trimethyl ammonium chloride
- (2) Glucose
- (3) Urea
- (4) Pyridinium chloride

Scan or tap for the full solution



Q.23 Which of the following forms cationic micelles above certain concentration? [AIPMT 2004]

- (1) Sodium dodecyl sulphate
- (2) Sodium acetate
- (3) Urea
- (4) Cetyltrimethylammonium bromide.

Scan or tap for the full solution



Q.24 According to the adsorption theory of catalysis, the speed of the reaction increases because [AIPMT 2003]

- (1) the concentration of reactant molecules at the active centres of the catalyst becomes high due to adsorption
- (2) in the process of adsorption, the activation energy of the molecules becomes large
- (3) adsorption produces heat which increases the speed of the reaction
- (4) adsorption lowers the activation energy of the reaction.

Scan or tap for the full solution



Q.25 Position of non-polar and polar part in micelle [AIPMT 2002]

- (1) polar at outer surface but non-polar at inner surface
- (2) polar at inner surface but non-polar at outer surface
- (3) distributed over all the surface
- (4) are present in the surface only

Scan or tap for the full solution



Q.26 Which is not correct regarding the adsorption of a gas on surface of a solid? [AIPMT 2001]

- (1) On increasing temperature adsorption increases continuously.
- (2) Enthalpy and entropy change is negative.
- (3) Adsorption is more for some specific substance.
- (4) It is a reversible reaction.

Scan or tap for the full solution



Q.27 Which one of the following methods is commonly used for the destruction of a colloid? [AIPMT 2000]

- (1) Dialysis
- (2) Condensation
- (3) Filtration by animal membrane
- (4) By adding electrolyte

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7
Ans.	3	2	3	3	4	2	3, 4
Ques.	8	9	10	11	12	13	14
Ans.	3	1	3	4	3	2	2
Ques.	15	16	17	18	19	20	21
Ans.	4	1	4	2	4	1	4
Ques.	22	23	24	25	26	27	
Ans.	1	4	4	1	1	4	