Chemistry Study Materials for Class 12
(NCERT Based MCQ with Answer of Chapter – 05)

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Surface Chemistry (MCQ)

1. 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

2. Which one of the following statement 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 are mostly proteinous in nature

d) Enzyme action is specific

3. The protecting power of lyophilic colloidal sol is expressed in terms of

(a) Critical micelle concentration (b) Oxidation number

(c) Coagulation value (d) Gold number

4. Which one of the following is an example for homogenous catalysis?

a) Hydrogenation of oil

b) Manufacture of ammonia by Haber's process

c) Manufacture of sulphuric acid by Contact process

d) Hydrolysis of sucrose in presence of dilute hydrochloric acid

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

a) Peptization (c) Treatment of drinking water by potash alum

b) Formation of delta regions (d) Clotting of blood by the use of ferric chloride

6. Among the electrolytes Na_2SO_4, $CaCl_2$, $Al_2(SO_4)_3$ and NH_4Cl, the most effective coagulating agent for Sb_2S_3 sol is

(a) Na_2SO_4 (b) $CaCl_2$ (c) $Al_2(SO_4)_3$ (d) NH_4Cl

7. Which of the following statements is incorrect regarding physisorption?

(a) It occurs because of Vander Waals forces

(b) More easily liquefiable gases are adsorbed readily

© Under high pressure it results into Multimolecular layer on adsorbent surface

(d) Enthalpy of adsorption (ΔH adsorption) is low and positive

8.Rate of physical adsorption increase with

(a) increase in temperature (b)decrease in pressure

© decrease in temperature (d) decrease in surface area

9. 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) B < D < A < C (b) D < A < C < B © C < B < D < A (d) A < C < B < D

10. The Langmuir adsorption isotherm is deduced using the assumption

(a) The adsorbed molecules interact with each other.

(b)The adsorption takes place in multilayer.

© The adsorption sites are equivalent in their ability to adsorb the particles.

(d) The heat of adsorption varies with coverage.

11.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 (a) N (b) 1/n © log K (d) - log K

12. In Langmuir's model of adsorption of a gas on a solid surface

(a) the adsorption at a single site on the surface may involve multiple molecules at the same time.

(b) the mass of gas striking a given area of surface is proportional to the pressure of the gas.

© the mass of gas striking a given area of surface is independent of the pressure of the gas.

(d) the rate of dissociation of adsorbed molecules from the surface does not depend on the surface covered.

13. Which of the following electrolyte will have maximum flocculation value for $Fe(OH)_3$ sol?

(a) Na_2S (b) $(NH_4)_3PO_4$ © K_2SO_4 (d) NaCl

14. Which one of the followings forms micelles in aqueous solution above certain concentration?

(a) Dodecyl Trimethyl ammonium chloride (b) Glucose © Urea (d) Pyridinium chloride

15. During the adsorption of Krypton on activated charcoal at low temperature

(a) $\Delta H < 0$ and $\Delta S < 0$ (b) $\Delta H > 0$ and $\Delta S < 0$

(c) $\Delta H > 0$ and $\Delta S > 0$ (d) $\Delta H < 0$ and $\Delta S > 0$

16. The basic principle of Cottrell's precipitator is

(a) Le-Chatelier's principle (b) Peptisation

(c) Neutralisation of charge on colloidal particles (d) scattering of light

17. The colour of sky is due to

(a) absorption of light by atmospheric gases (c) transmission of light

(b) wavelength of scattered light (d) All of these

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

(a) $CH_3(CH_2)_{15}N^+(CH_3)_3Br^-$ (b) $CH_3(CH_2)_{11}OSO_3^-Na^+$

(c) $CH_3(CH_2)_{16}COO^-Na^+$ (d) $CH_3(CH_2)_{11}N^+(CH_3)_3Br^-$

19. $2SO_2(g) \overset{V_2O_5}{\rightleftharpoons}$ is an example for

(a) irreversible reaction (b) heterogeneous catalysis

(c) homogenous catalyst (d) neutralization reaction

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

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

ANSWERS

1.C 2.B 3.D 4.D 5.A 6.C 7.D 8.C 9.D 10.C 11.B 12.B 13.D 14.A 15.A 16.C 17.B 18.(C) 19.B 20.B

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