1. The size of the colloidal particles is in between:
(1) $10^{-7} - 10^{-9}$ cm. (2) $10^{-9} - 10^{-11}$ cm.
(3) $10^{-5} - 10^{-7}$ cm. (4) $10^{-2} - 10^{-3}$ cm.

2. Peptization is a process of :
(1) Precipitating the colloidal particles
(2) Purifying the colloidal sol
(3) Dispersing the precipitate into colloidal sol
(4) Movement of colloidal particles towards the oppositely charged electrodes

3. Colloids are purified by :
(1) Brownian motion (2) Precipitation
(3) Dialysis (4) Filtration

4. Flocculation value is expressed in terms of:
(1) Millimole per litre
(2) Mol per litre
(3) Gram per litre
(4) Mol per millilitre

5. Which is kinetic phenomenon?
(1) Brownian motion
(2) Tyndall effect
(3) Both (1) and (2)
(4) None of these

6. The heats of adsorption in physisorption lie in the range (in KJ mol^{-1}) :
(1) 40-400 (2) 40-100
(3) 20-40 (4) 1-10

7. According to Langmuir adsorption isotherm, the amount of gas adsorbed at very high pressure :
(1) Reaches a constant limiting value
(2) Goes on increasing with pressure
(3) Goes on decreasing with pressure
(4) Increases first and decreases later with pressure

8. Which one of the following is an incorrect statement for physisorption :
(1) It is a reversible process
(2) It requires less heat of adsorption
(3) It requires activation energy
(4) It takes place at low temparature

9. Lyophobic colloids are :–
(1) Reversible
(2) Irreversible
(3) Water loving
(4) Solvent loving

10. When freshly precipitated $Fe(OH)_3$ is boiled with water in the presence of few drops of dil HCl, a hydrated ferric hydroxide sol is obtained. This method is termed as :–
(1) Dialysis (2) Peptization
(3) Ultrafiltration (4) Electrodispersion

11. To coagulate Pt sol, which of the following is most effective :–
(1) NaCl (2) Na_3PO_4
(3) $AlCl_3$ (4) Alcohol

12. A colloidal mixture of $Fe(OH)_3$ in water is :–
(1) A hydrophilic colloid
(2) A hydrophobic colloid
(3) An emulsion
(4) None

13. A catalyst is a substance which :
(1) Increases the equilibrium concentration of the product
(2) Change the equilibrium constant of the reaction
(3) Shortens the time to reach equilibrium
(4) Supplies energy to the reaction

14. Which of the following statement is more correct:
(1) Catalyst only accelerates the rate of a chemical reaction
(2) A catalyst can retard the rate of a chemical reaction
(3) A catalyst does not affect the speed of a reaction
(4) A catalyst alters the speed of a reaction

15. Efficiency of the catalyst depends on its :–
(1) Molecular weight
(2) Number of free valencies
(3) Physical state
(4) Amount used

16. In a reversible reaction, a catalyst :–
(1) Increases the rate of forward reaction only
(2) Increases the rate of forward reaction to a greater extent that of the backward reaction
(3) Increases the rate of forward reaction and decreases that of the backward reaction
(4) alters the rate of forward and backward reaction equally

17. Which is false for catalyst :–
(1) A catalyst can initiate a reaction
(2) It does not alter the position of equilibrium in a reversible reaction
(3) A catalyst remains unchanged in quality and composition at the end of reaction
(4) Catalysts are sometimes very specific in respect of a reaction

18. Shape selective catalysts are so called because of :
(1) The shape of the catalysts
(2) The specificity of the catalysts
(3) The size of the pores of the catalysts which can trap only selective molecules
(4) Their use for only some selected reactions

19. Which gas will be adsorbed on a solid to greater extent.
(1) A gas having non polar molecule
(2) A gas having highest critical temperature (T_c)
(3) A gas having lowest critical temperature.
(4) A gas having highest critical pressure.

20. The nature of bonding forces in chemisorption
(1) purely physical such as Van Der Waal's forces
(2) purely chemical
(3) both chemical and physical simultaneously.
(4) none of these

21. The Tyndall effect associated with colloidal particles is due to
(1) presence of electrical charges
(2) scattering of light
(3) absorption of light
(4) reflection of light

22. Which one of the following is not applicable to chemisorption?
(1) Its heat of adsorption is high
(2) It takes place at high temperature
(3) It is reversible
(4) It forms mono-molecular layers

23. Milk is an example of
(1) emulsion (2) suspension
(3) foam (4) sol.

24. Colloidal particles in a sol. can be coagulated by
(1) heating
(2) adding an electrolyte
(3) adding oppositely charged sol
(4) any of the above methods

25. Given below are a few electrolytes, indicate which one among them will bring about the coagulation of a gold sol. quickest and in the least of molar concentration?
(1) NaCl (2) $MgSO_4$
(3) $Al_2(SO_4)_3$ (4) $K_4[Fe(CN)_6]$

26. The minimum concentration of an electrolyte required to cause coagulation of a sol is called
(1) flocculation value (2) gold number
(3) protective value (4) none of these

27. Which one of following statements is not correct in respect of lyophilic sols?
(1) There is a considerable interaction between the dispersed phase and dispersion medium
(2) These are quite stable and are not easily coagulated
(3) They need stabilizing agent
(4) The particle are hydrated

28. At the critical micelle concentration (CMC) the surfactant molecules
(1) decompose
(2) dissociate
(3) associate
(4) become completely soluble

29. Although nitrogen does not adsorb on surface at room temperature, it adsorbs on surface at 83K. Which one of the following statements is correct -
(1) At 83K, there is formation of monomolecular layer
(2) At 83K, there is formation of multimolecular layer
(3) At 83K, nitrogen molecules are held by chemical bonds
(4) At 83K, nitrogen is adsobed as atoms.

30. The volume of a colloidal particle V_C, volume of a solute particle in a true solution V_t, the volume of suspension particle is V_S can be arranged
(1) $V_C = V_t = V_S$ (2) $V_S < V_C < V_t$
(3) $V_S > V_C > V_t$ (4) $V_C > V_S > V_t$

ANSWER KEY — Exercise-I

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	**3**	**3**	**3**	**1**	**1**	**3**	**1**	**3**	**2**	**2**
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	**3**	**2**	**3**	**4**	**2**	**4**	**1**	**1**	**2**	**2**
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	**2**	**3**	**1**	**4**	**3**	**1**	**3**	**3**	**2**	**3**