

Q1 JEE Main 2020 - 2 September (Morning)

Which of the following is used for the preparation of colloids?

- (A) Van Arkel Method
- (B) Bredig's Arc Method
- (C) Mond Process
- (D) Ostwald Process

Q2 JEE Main 2020 - 3 September (Morning)

Henry's constant (in kbar) for four gases α , β , γ and δ in water at 298K is given below

| | α | β | γ | δ |
|---|----------|---------|--------------------|----------|
| K_H | 50 | 2 | 2×10^{-5} | 0.5 |
| (density of water = 10^3kgm^{-3} at 298K) | | | | |

This table implies that

- (A) The pressure of a 55.5 molal solution of γ is 1 bar
- (B) Solubility of γ at 308K is lower than at 298K
- (C) α has the highest solubility in water at a given pressure
- (D) The pressure of a 55.5 molal solution of δ is 250 bar

Q3 JEE Main 2020 - 2 September (Morning)

The mass of gas adsorbed, x , per unit mass of adsorbate, m , was measured at various pressures, p . A graph between $\log \frac{x}{m}$ and $\log p$ gives a straight line with slope equal to 2 and the intercept equal to 0.4771. The value of $\frac{x}{m}$ at a pressure of 4 atm is:

(Given $\log 3 = 0.4771$)

Q4 JEE Main 2020 - 2 September (Evening)

Amongst the following statements regarding adsorption, those that are valid are

- (a) ΔH becomes less negative as adsorption proceeds
- (b) On a given adsorbent, ammonia is adsorbed more than nitrogen gas

(c) On adsorption, the residual force acting along the surface of the adsorbent increases

(d) With increase in temperature, the equilibrium concentration of adsorbate increases

(A) (c) and (d)

(B) (a) and (b)

(C) (d) and (a)

(D) (b) and (c)

Q5 JEE Main 2020 - 3 September (Morning)

Tyndall effect is observed when

(A) The diameter of dispersed particles is much larger than the wavelength of light used

(B) The diameter of dispersed particles is similar to the wavelength of light used

(C) The diameter of dispersed particles is much smaller than the wavelength of light used

(D) The refractive index of dispersed phase is greater than that of the dispersion medium

Q6 JEE Main 2020 - 4 September (Morning)

Match the following

(i) Foam

(a) smoke

(ii) Gel

(b) cell fluid

(iii) Aerosol

(c) jellies

(iv) Emulsion

(d) rubber

(e) froth

(f) Milk

(A) (i) – (b), (ii) – (c), (iii) – (e), (iv) – (d)

(B) (i)-(d), (ii)-(b), (i iv)-(f) (iii)-(e),

(C) (i) – (d), (ii) – (b), (iii) – (a), (iv) – (e)

(D) (i) – (e), (ii) – (c), (iii) – (a), (iv) – (f)

#MathBoleTohMathonGo

www.mathongo.com

Q7 JEE Main 2020 - 4 September (Evening)

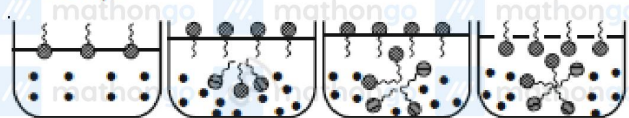
A sample of red ink (a colloidal suspension) is prepared by mixing eosin dye, egg white, HCHO and water. The component which ensures stability of the ink sample is

- (A) HCHO
- (B) Water
- (C) Eosin dye
- (D) Egg white

Q8 JEE Main 2020 - 5 September (Morning)

Identify the correct molecular picture showing what happens at the critical micellar concentration

(CMC) of an aqueous solution of a surfactant ( polar head;  non polar head;  water).

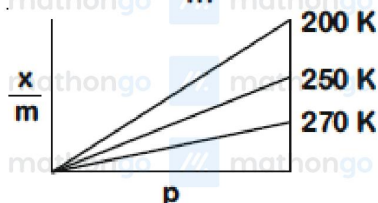


(A) (B) (C) (D)

- (A) (C)
- (B) (A)
- (C) (D)
- (D) (B)

Q9 JEE Main 2020 - 5 September (Evening)

Adsorption of a gas follows Freundlich adsorption isotherm. If x is the mass of the gas adsorbed on mass m of the adsorbent, the correct plot of $\frac{x}{m}$ versus p is



(A)



Q10 JEE Main 2020 - 6 September (Morning)

Kraft temperature is the temperature

- (A) below which the aqueous solution of detergents starts freezing.
- (B) above which the formation of micelles takes place.
- (C) below which the formation of micelles takes place.
- (D) above which the aqueous solution of detergents starts boiling.

Q11 JEE Main 2020 - 6 September (Evening)

For Freundlich adsorption isotherm, a plot of $\log(x/m)$ (y - axis) and $\log p$ (x - axis) gives a straight line. The intercept and slope for the line is 0.4771 and 2, respectively. The mass of gas, adsorbed per gram of adsorbent if the initial pressure is 0.04 atm, is $\times 10^{-4}$ g ($\log 3 = 0.4771$)

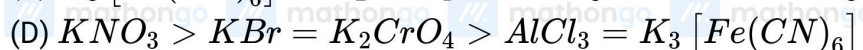
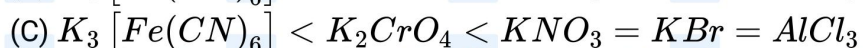
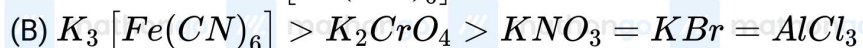
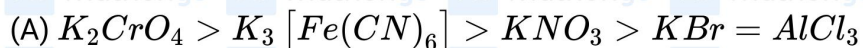
Q12 JEE Main 2020 - 7 January (Evening)

Flocculation value for As_2S_3 sol by HCl is $30 \text{ m mole } L^{-1}$. Calculate mass of H_2SO_4 required in gram for 250 mL sol.

Multiply your answer with 100

Q13 JEE Main 2020 - 8 January (Morning)

According to hardy-schultz rule, Coagulation value or flocculation value $\propto Fe(OH)_3$ sol is:



Surface Chemistry

Questions with Answer Keys

JEE Main 2020 Chapterwise

Chemistry

Answer Key

Q1 (B)

Q2 (B)

Q3 (48)

Q4 (B)

Q5 (B)

Q6 (D)

Q7 (D)

Q8 (C)

Q9 (B)

Q10 (B)

Q11 (48)

Q12 (37)

Q13 (C)

#MathBoleTohMathonGo

www.mathongo.com