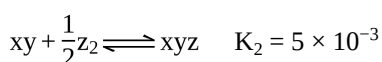
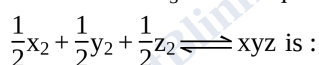


JEE MAIN EQUILIBRIUM — PYQS

Max. Marks: 168
Questions: 42

Section A (MCQ) — 26 questions

- Q.1** Consider the following reactions in which all the reactants and products are present in gaseous state
- $$2xy \rightleftharpoons x_2 + y_2 \quad K_1 = 2.5 \times 10^5$$

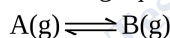

 The value of K_3 for the equilibrium


[JEE Main 2026 (Online) 8th April Evening Shift]

- (1) 2.5×10^{-3} (2) 2.5×10^3
 (3) 1.0×10^{-5} (4) 5×10^{-3}

 Scan or tap for the
full solution


- Q.2** One mole each of He and A(g) are taken in a 10 L closed flask and heated to 400 K to establish the following equilibrium.



K_c for this reaction at 400 K is 4.0. The partial pressures (in atm) of He and B(g) are respectively (at equilibrium)

(Assume He, A(g) and B(g) behave as ideal gases)
 (Given : $R = 0.082 \text{ L atm K}^{-1} \text{ mol}^{-1}$)

[JEE Main 2026 (Online) 6th April Morning Shift]

- (1) 3.28, 2.624 (2) 2.624, 3.28
 (3) 3.28, 0.656 (4) 0.656, 6.56

 Scan or tap for the
full solution


- Q.3** Given is a concentrated solution of a weak electrolyte A_xB_y of concentration 'c' and dissociation constant 'K'. The degree of dissociation is given by :

[JEE Main 2026 (Online) 6th April Evening Shift]

(1) $[K \times c^{x+y-1} x^x y^y]^{x+y}$

(2) $\left(\frac{K}{c^{x+y-1} x^x y^y} \right)^{\frac{1}{x+y}}$

(3) $\left(\frac{c^{x+y-1} x^x y^y}{K} \right)^{x+y}$

(4) $\left(\frac{c^{x+y-1} x^x y^y}{K} \right)^{\frac{1}{x+y}}$

 Scan or tap for the
full solution


- Q.4** M_3A_2 is a sparingly soluble salt of molar mass $y \text{ g mol}^{-1}$ and solubility $x \text{ g L}^{-1}$. The ratio of the molar concentration of the anion (A^{3-}) to the solubility product of the salt is

[JEE Main 2026 (Online) 5th April Morning Shift]

- (1) $\frac{1}{54} \cdot \frac{y^4}{x^4}$ (2) $\frac{y^5}{108x^4}$
 (3) $108 \cdot \frac{x^5}{y^5}$ (4) $\frac{1}{108} \cdot \frac{y^4}{x^4}$

 Scan or tap for the
full solution


- Q.5** Arrange the following resultant mixtures in increasing order of their pH values

- A. 10 mL 0.2 M Ca(OH)_2 + 25 mL 0.1 M HCl
 B. 10 mL 0.01 M H_2SO_4 + 10 mL 0.01 M Ca(OH)_2
 C. 10 mL 0.1 M H_2SO_4 + 10 mL 0.1 M KOH

Choose the correct answer from the options given below : [JEE Main 2026 (Online) 5th April Morning Shift]

- (1) $B < C < A$ (2) $C < A < B$
 (3) $C < B < A$ (4) $A < C < B$

 Scan or tap for the
full solution


- Q.6** The reaction $A(g) \rightleftharpoons B(g) + C(g)$ was initiated with the amount 'a' of A(g). At equilibrium it is found that the amount of A(g) remaining is $(a - x)$ at a total pressure of p.

The equilibrium constant K_p of the reaction can be calculated from the expression :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) $\frac{x^2}{a^2 + x^2} \times p$ (2) $\frac{x^2}{a^2 - x^2} \times p$
 (3) $\frac{a + x^2}{x^2} \times p$ (4) $\frac{a^2 - x^2}{x^2} \times p$

 Scan or tap for the
full solution


- Q.7** At T(K), the equilibrium constant of $A_2(g) + B_2(g) \rightleftharpoons C(g)$ is 2.7×10^{-5} . What is the equilibrium constant for $\frac{1}{3}A_2(g) + \frac{1}{3}B_2(g) \rightleftharpoons \frac{1}{3}C(g)$ at the same temperature?

[JEE Main 2026 (Online) 4th April Morning Shift]

- (1) $(2.7 \times 10^{-5})^3$ (2) 6×10^{-2}
 (3) $\sqrt{2.7 \times 10^{-5}}$ (4) 3×10^{-2}

Scan or tap for the full solution



Q.8 20 mL of a solution of acetic acid required 28.4 mL of 0.1 M NaOH for its neutralization. A solution (X) was prepared by mixing 20 mL of the above acetic acid and 14.2 mL of 0.1 M NaOH solution. What is the pH of the solution (X)? (pK_a value of acetic acid is 4.75).

[JEE Main 2026 (Online) 4th April Evening Shift]

- (1) 7.0 (2) 4.75 (3) 3.5 (4) 4.82

Scan or tap for the full solution



Q.9 The solubility product constants of Ag_2CrO_4 and $AgBr$ are $32x$ and $4y$ respectively at 298 K. The value of $\left(\frac{\text{molarity of } Ag_2CrO_4}{\text{molarity of } AgBr}\right)$ can be expressed as :

[JEE Main 2026 (Online) 2nd April Morning Shift]

- (1) $\frac{2\sqrt[3]{x}}{y}$ (2) $2\sqrt{\frac{x}{y}}$ (3) $\sqrt{\frac{x}{y}}$ (4) $\frac{\sqrt[3]{x}}{\sqrt{y}}$

Scan or tap for the full solution



Q.10 The first and second ionization constants of a weak dibasic acid H_2A are 8.1×10^{-8} and 1.0×10^{-13} respectively. 0.1 mol of H_2A was dissolved in 1 L of 0.1 M HCl solution. The concentration of HA^- in the resultant solution is:

[JEE Main 2026 (Online) 2nd April Evening Shift]

- (1) 0.1 M (2) 9.53×10^{-6} M
 (3) 8.1×10^{-8} M (4) 1.0×10^{-13} M

Scan or tap for the full solution



Q.11 At 25°C, 20.0 mL of 0.2 M weak monoprotic acid HX is titrated against 0.2 M NaOH. The pH of the solution (a) at the start of the titration (when NaOH has not been added) and (b) when 10 mL of NaOH is added respectively, are :

Given :

$$K_a = 5 \times 10^{-4}$$

$$pK_a = 3.3$$

$$\alpha \ll 1$$

[JEE Main 2026 (Online) 2nd April Evening Shift]

- (1)

(a)	(b)
0.7	2.0

 (2)

(a)	(b)
2.0	3.3

 (3)

(a)	(b)
1.1	2.2

 (4)

(a)	(b)
3.0	2.2

Scan or tap for the full solution



Q.12 Consider a weak base 'B' of $pK_b = 5.699$. 'x' mL of 0.02 M HCl and 'y' mL of 0.02 M weak base 'B' are mixed to make 100 mL of a buffer of pH 9 at 25°C. The values of 'x' and 'y' respectively are :
 [Given : $\log 2 = 0.3010$, $\log 3 = 0.4771$, $\log 5 = 0.699$]

[JEE Main 2026 (Online) 28th January Morning Shift]

- (1)

x	y
42.7	57.3

 (2)

x	y
14.3	85.7

 (3)

x	y
85.7	14.3

 (4)

x	y
11.1	88.9

Scan or tap for the full solution



Q.13 Observe the following equilibrium in a 1 L flask.
 $A(g) \rightleftharpoons B(g)$

At T(K), the equilibrium concentrations of A and B are 0.5 M and 0.375 M respectively. 0.1 moles of A is added into the flask and heated to T(K) to establish the equilibrium again. The new equilibrium concentrations (in M) of A and B are respectively

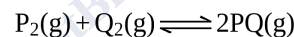
[JEE Main 2026 (Online) 28th January Evening Shift]

- (1) 0.742, 0.557 (2) 0.367, 0.275
 (3) 0.53, 0.4 (4) 0.557, 0.418

Scan or tap for the full solution



Q.14 Consider the following gaseous equilibrium in a closed container of volume 'V' at T(K).



2 moles each of $P_2(g)$, $Q_2(g)$ and $PQ(g)$ are present at equilibrium. Now one mole each of ' P_2 ' and ' Q_2 ' are added to the equilibrium keeping the temperature at T(K). The number of moles of P_2 , Q_2 and PQ at the new equilibrium, respectively, are

[JEE Main 2026 (Online) 24th January Evening Shift]

- (1) 2.56, 1.62, 2.24 (2) 2.67, 2.67, 2.67
 (3) 1.21, 2.24, 1.56 (4) 1.66, 1.66, 1.66

Scan or tap for the full solution



Q.15 Consider the general reaction given below at 400 K
 $x A(g) \rightleftharpoons y B(g)$.

The values of K_p and K_c are studied under the same condition of temperature but variation in x and y.

(i) $K_p = 85.87$ and $K_c = 2.586$ appropriate units

(ii) $K_p = 0.862$ and $K_c = 28.62$ appropriate units

The values of x and y in (i) and (ii) respectively are :

[JEE Main 2026 (Online) 23rd January Morning Shift]

(1)	(i)	(ii)
	1, 2	2, 1
(3)	(i)	(ii)
	3, 1	3, 1

(2)	(i)	(ii)
	1, 3	2, 1
(4)	(i)	(ii)
	4, 1	4, 1

Scan or tap for the full solution



Q.16 Which of the following mixture gives a buffer solution with pH = 9.25 ?

Given : pK_b (NH_4OH) = 4.75

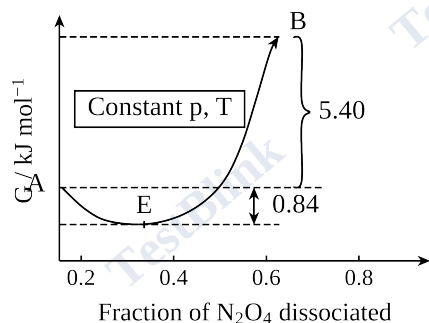
[JEE Main 2026 (Online) 22nd January Evening Shift]

- (1) 0.5 M NH_4OH (0.2 L) + 0.2 M HCl (0.5 L)
- (2) 0.2 M NH_4OH (0.5 L) + 0.1 M HCl (0.5 L)
- (3) 0.2 M NH_4OH (0.4 L) + 0.1 M HCl (1 L)
- (4) 0.4 M NH_4OH (1 L) + 0.1 M HCl (1 L)

Scan or tap for the full solution



Q.17 For the reaction, $\text{N}_2\text{O}_4 \rightleftharpoons 2\text{NO}_2$, graph is plotted as shown below. Identify correct statements.



- A. Standard free energy change for the reaction is $-5.40 \text{ kJ mol}^{-1}$.
- B. As $\Delta G^\ominus$ in graph is positive, N_2O_4 will not dissociate into NO_2 at all.
- C. Reverse reaction will go to completion.
- D. When 1 mole of N_2O_4 changes into equilibrium mixture, value of $\Delta G^\ominus = -0.84 \text{ kJ mol}^{-1}$.
- E. When 2 moles of NO_2 change into equilibrium mixture, $\Delta G^\ominus$ for equilibrium mixture is $-6.24 \text{ kJ mol}^{-1}$.

Choose the correct answer from the options given below :

[JEE Main 2026 (Online) 21st January Morning Shift]

- (1) C and E only
- (2) D and E only
- (3) A and D only
- (4) B and C only

Scan or tap for the full solution



Q.18 An aqueous solution of HCl with pH 1.0 is diluted by adding equal volume of water (ignoring dissociation of water). The pH of HCl solution would (Given $\log 2 = 0.30$)

[JEE Main 2025 (Online) 7th April Morning Shift]

- (1) increase to 1.3
- (2) reduce to 0.5
- (3) increase to 2
- (4) remain same

Scan or tap for the full solution



Q.19 In the following system,
 $\text{PCl}_5(\text{g}) \rightleftharpoons \text{PCl}_3(\text{g}) + \text{Cl}_2(\text{g})$ at equilibrium, upon addition of xenon gas at constant T & p, the concentration of

[JEE Main 2025 (Online) 3rd April Morning Shift]

- (1) PCl_5 , PCl_3 & Cl_2 remain constant
- (2) PCl_3 will increase
- (3) Cl_2 will decrease
- (4) PCl_5 will increase

Scan or tap for the full solution



Q.20 Given below are two statements :

Statement-I: A catalyst cannot alter the equilibrium constant (K_c) of the reaction, temperature remaining constant.

Statement-II: A homogeneous catalyst can change the equilibrium composition of a system, temperature remaining constant.

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

[JEE Main 2025 (Online) 3rd April Morning Shift]

- (1) Statement-I is true but Statement-II is false
- (2) Statement-I is false but Statement-II is true
- (3) Both Statement-I and Statement-II are true
- (4) Both Statement-I and Statement-II are false

Scan or tap for the full solution



Q.21 If equal volumes of AB_2 and XY (both are salts) aqueous solutions are mixed, which of the following combination will give a precipitate of AY_2 at 300 K ? (Given K_{sp} (at 300 K) for $\text{AY}_2 = 5.2 \times 10^{-7}$)

[JEE Main 2025 (Online) 2nd April Morning Shift]

- (1) $2.0 \times 10^{-4} \text{ M AB}_2$, $0.8 \times 10^{-3} \text{ M XY}$
- (2) $2.0 \times 10^{-2} \text{ M AB}_2$, $2.0 \times 10^{-2} \text{ M XY}$
- (3) $1.5 \times 10^{-4} \text{ M AB}_2$, $1.5 \times 10^{-3} \text{ M XY}$
- (4) $3.6 \times 10^{-3} \text{ M AB}_2$, $5.0 \times 10^{-4} \text{ M XY}$

Scan or tap for the full solution



Q.22 Consider the following chemical equilibrium of the gas phase reaction at a constant temperature :



If p is the total pressure, K_p is the pressure equilibrium constant and α is the degree of dissociation, then which of the following is true at equilibrium?

[JEE Main 2025 (Online) 2nd April Evening Shift]

- (1) If K_p value is extremely high compared to p , α becomes much less than unity
 (2) When p increases, α increases
 (3) If p value is extremely high compared to K_p , $\alpha \approx 1$
 (4) When p increases, α decreases

Scan or tap for the full solution



- Q.23** At temperature T , compound $AB_{2(g)}$ dissociates as $AB_{2(g)} \rightleftharpoons AB_{(g)} + \frac{1}{2}B_{2(g)}$ having degree of dissociation x (small compared to unity). The correct expression for x in terms of K_p and p is:

[JEE Main 2025 (Online) 29th January Morning Shift]

- (1) $\sqrt{K_p}$ (2) $\sqrt[3]{\frac{2K_p^2}{p}}$ (3) $\sqrt[3]{\frac{2K_p}{p}}$ (4) $\sqrt[4]{\frac{2K_p}{p}}$

Scan or tap for the full solution



- Q.24** A weak acid HA has degree of dissociation x . Which option gives the correct expression of $(pH - pK_a)$?

[JEE Main 2025 (Online) 28th January Morning Shift]

- (1) $\log\left(\frac{1-x}{x}\right)$ (2) 0
 (3) $\log(1+2x)$ (4) $\log\left(\frac{x}{1-x}\right)$

Scan or tap for the full solution



- Q.25** Ice and water are placed in a closed container at a pressure of 1 atm and temperature 273.15 K. If pressure of the system is increased 2 times, keeping temperature constant, then identify correct observation from following

[JEE Main 2025 (Online) 28th January Morning Shift]

- (1) Liquid phase disappears completely.
 (2) The amount of ice decreases.
 (3) The solid phase (ice) disappears completely.
 (4) Volume of system increases.

Scan or tap for the full solution



- Q.26** Arrange the following in increasing order of solubility product : $Ca(OH)_2$, $AgBr$, PbS , HgS

[JEE Main 2025 (Online) 28th January Evening Shift]

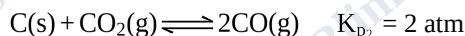
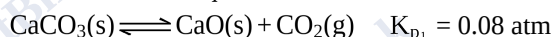
- (1) $PbS < HgS < Ca(OH)_2 < AgBr$
 (2) $HgS < AgBr < PbS < Ca(OH)_2$
 (3) $HgS < PbS < AgBr < Ca(OH)_2$
 (4) $Ca(OH)_2 < AgBr < HgS < PbS$

Scan or tap for the full solution



Section B (Numerical) — 16 questions

- Q.27** Solid carbon, CaO and $CaCO_3$ are mixed and allowed to attain equilibrium at T K.



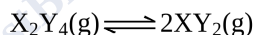
The partial pressure of CO is _____ $\times 10^{-1}$ atm

[JEE Main 2026 (Online) 8th April Evening Shift]

Scan or tap for the full solution



- Q.28** In a closed flask at 600 K, one mole of $X_2Y_4(g)$ attains equilibrium as given below :



At equilibrium, 75% $X_2Y_4(g)$ was dissociated and the total pressure is 1 atm. The magnitude of $\Delta_r G^\ominus$ (in kJ mol^{-1}) at this temperature is _____. (Nearest Integer)

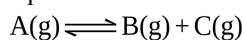
(Given : $R = 8.3 \text{ J mol}^{-1} \text{ K}^{-1}$; $\ln 10 = 2.3$, $\log 2 = 0.3$, $\log 3 = 0.48$, $\log 5 = 0.69$, $\log 7 = 0.84$)

[JEE Main 2026 (Online) 6th April Evening Shift]

Scan or tap for the full solution



- Q.29** The values of pressure equilibrium constant recorded at different temperatures for the following equilibrium reaction have been given below



$\frac{1}{T} (\text{K}^{-1})$	$\log_{10} K_p$
0.05	3.5
0.06	2.5
0.07	1.5

The magnitude of $\frac{\Delta H^\ominus}{R}$ calculated from the above data is _____. (Nearest integer)

[JEE Main 2026 (Online) 5th April Morning Shift]

Scan or tap for the full solution



- Q.30** The pH of a solution obtained by mixing 5 mL of 0.1 M NH_4OH solution with 250 mL of 0.1 M NH_4Cl solution is _____ $\times 10^{-2}$. (Nearest integer)

Given: $pK_b(NH_4OH) = 4.74$

$\log 2 = 0.30$

$\log 3 = 0.48$

$\log 5 = 0.70$

[JEE Main 2026 (Online) 4th April Morning Shift]

Scan or tap for the full solution



- Q.31** For the following reaction at 50 °C and at 2 atm pressure,
 $2\text{N}_2\text{O}_5(\text{g}) \rightleftharpoons 2\text{N}_2\text{O}_4(\text{g}) + \text{O}_2(\text{g})$
 N_2O_5 is 50% dissociated.
 The magnitude of standard free energy change at this temperature is x.
 $x = \text{_____ J mol}^{-1}$ [Nearest integer].
 Given : $R = 8.314 \text{ J mol}^{-1} \text{ K}^{-1}$, $\log 2 = 0.30$, $\log 3 = 0.48$, $\ln 10 = 2.303$, $^\circ\text{C} + 273 = \text{K}$
 [JEE Main 2026 (Online) 4th April Evening Shift]

Scan or tap for the full solution



- Q.32** Consider the dissociation equilibrium of the following weak acid
 $\text{HA} \rightleftharpoons \text{H}^+(\text{aq}) + \text{A}^-(\text{aq})$
 If the pK_a of the acid is 4, then the pH of 10 mM HA solution is _____. (Nearest integer)
 [Given: The degree of dissociation can be neglected with respect to unity]
 [JEE Main 2026 (Online) 28th January Morning Shift]

Scan or tap for the full solution



- Q.33** Consider two Group IV metal ions X^{2+} and Y^{2+} .
 A solution containing 0.01 M X^{2+} and 0.01 M Y^{2+} is saturated with H_2S . The pH at which the metal sulphide YS will form as a precipitate is _____. (Nearest integer)
 (Given: $K_{\text{sp}}(\text{XS}) = 1 \times 10^{-22}$ at 25°C,
 $K_{\text{sp}}(\text{YS}) = 4 \times 10^{-16}$ at 25°C, $[\text{H}_2\text{S}] = 0.1 \text{ M}$ in solution, $K_{a1} \times K_{a2}(\text{H}_2\text{S}) = 1.0 \times 10^{-21}$, $\log 2 = 0.30$, $\log 3 = 0.48$, $\log 5 = 0.70$)
 [JEE Main 2026 (Online) 24th January Morning Shift]

Scan or tap for the full solution



- Q.34** For the following gas phase equilibrium reaction at constant temperature,
 $\text{NH}_3(\text{g}) \rightleftharpoons 1/2 \text{N}_2(\text{g}) + 3/2 \text{H}_2(\text{g})$
 if the total pressure is $\sqrt{3}$ atm and the pressure equilibrium constant (K_p) is 9 atm, then the degree of dissociation is given as $(x \times 10^{-2})^{-1/2}$. The value of x is _____. (nearest integer)
 [JEE Main 2026 (Online) 23rd January Morning Shift]

Scan or tap for the full solution



- Q.35** The first and second ionization constants of H_2X are 2.5×10^{-8} and 1.0×10^{-13} respectively.
 The concentration of X^{2-} in 0.1 M H_2X solution is $\text{_____} \times 10^{-15} \text{ M}$. (Nearest Integer)
 [JEE Main 2026 (Online) 21st January Evening Shift]

Scan or tap for the full solution



- Q.36** $\text{X}_2(\text{g}) + \text{Y}_2(\text{g}) \rightleftharpoons 2\text{Z}(\text{g})$
 $\text{X}_2(\text{g})$ and $\text{Y}_2(\text{g})$ are added to a 1 L flask and it is found that the system attains the above equilibrium at T(K) with the number of moles of $\text{X}_2(\text{g})$, $\text{Y}_2(\text{g})$ and $\text{Z}(\text{g})$ being 3, 3 and 9 mol respectively (equilibrium moles). Under this condition of equilibrium, 10 mol of $\text{Z}(\text{g})$ is added to the flask and the temperature is maintained at T(K). Then the number of moles of $\text{Z}(\text{g})$ in the flask when the new equilibrium is established is _____. (Nearest integer)
 [JEE Main 2026 (Online) 23rd January Evening Shift]

Scan or tap for the full solution



- Q.37** Dissociation of a gas A_2 takes place according to the following chemical reaction. At equilibrium, the total pressure is 1 bar at 300 K.
 $\text{A}_2(\text{g}) \rightleftharpoons 2\text{A}(\text{g})$
 The standard Gibbs energy of formation of the involved substances has been provided below:
- | Substance | $\Delta G_f^\circ / \text{kJ mol}^{-1}$ |
|--------------|---|
| A_2 | -100.00 |
| A | -50.832 |
- The degree of dissociation of $\text{A}_2(\text{g})$ is given by $(x \times 10^{-2})^{1/2}$ where $x = \text{_____}$. (Nearest integer).
 [Given : $R = 8 \text{ J mol}^{-1} \text{ K}^{-1}$, $\log 2 = 0.3010$, $\log 3 = 0.48$]
 Assume degree of dissociation is not negligible.

[JEE Main 2026 (Online) 22nd January Morning Shift]

Scan or tap for the full solution



- Q.38** The equilibrium constant for decomposition of $\text{H}_2\text{O}(\text{g})$
 $\text{H}_2\text{O}(\text{g}) \rightleftharpoons \text{H}_2(\text{g}) + \frac{1}{2} \text{O}_2(\text{g})$; $\Delta G^\circ = 92.34 \text{ kJ mol}^{-1}$
 is 8.0×10^{-3} at 2300 K and total pressure at equilibrium is 1 bar. Under this condition, the degree of dissociation (α) of water is $\text{_____} \times 10^{-2}$ (nearest integer value).
 [Assume α is negligible with respect to 1]
 [JEE Main 2025 (Online) 8th April Evening Shift]

Scan or tap for the full solution



- Q.39** One litre buffer solution was prepared by adding 0.10 mol each of NH_3 and NH_4Cl in deionised water. The change in pH on addition of 0.05 mol of HCl to the above solution is $\text{_____} \times 10^{-2}$. (Nearest integer)
 Given : pK_b of $\text{NH}_3 = 4.745$ and $\log_{10} 3 = 0.477$
 [JEE Main 2025 (Online) 7th April Evening Shift]

Scan or tap for the full solution



- Q.40** The pH of a 0.01 M weak acid HX ($K_a = 4 \times 10^{-10}$) is found to be 5. Now the acid solution is diluted with excess of water so that the pH of the solution changes to 6. The new concentration of the diluted weak acid is given as $x \times 10^{-4}$ M. The value of x is _____ (nearest integer)

[JEE Main 2025 (Online) 4th April Morning Shift]

Scan or tap for the full solution



- Q.41** x mg of Mg(OH)_2 (molar mass = 58 g mol^{-1}) is required to be dissolved in 1.0 L of water to produce a pH of 10.0 at 298 K. The value of x is _____ mg. (Nearest integer)
(Given : Mg(OH)_2 is assumed to dissociate completely in H_2O)

[JEE Main 2025 (Online) 4th April Evening Shift]

Scan or tap for the full solution



- Q.42** Consider the following equilibrium,
 $\text{CO(g)} + 2\text{H}_2\text{(g)} \rightleftharpoons \text{CH}_3\text{OH(g)}$
 0.1 mol of CO along with a catalyst is present in a 2 dm^3 flask maintained at 500 K. Hydrogen is introduced into the flask until the pressure is 5 bar and 0.04 mol of CH_3OH is formed. The $K_p^\ominus$ is _____ $\times 10^{-3}$ (nearest integer).
 Given : $R = 0.08 \text{ dm}^3 \text{ bar K}^{-1} \text{ mol}^{-1}$
 Assume only methanol is formed as the product and the system follows ideal gas behaviour.

[JEE Main 2025 (Online) 2nd April Morning Shift]

Scan or tap for the full solution



ANSWER KEY

Section A (MCQ) — 26 questions

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

Section B (Numerical) — 16 questions

Ques.	27	28	29	30	31	32	33
Ans.	4	8	230	756	2474	3	4
Ques.	34	35	36	37	38	39	40
Ans.	125	100	15	33	5	48	25
Ques.	41	42					
Ans.	3	74					