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EdLoop EAPCET

CHEMISTRY · EAPCET (EAMCET)

Chemical Equilibrium

Previous Year Questions with answers

120 questions · **110** papers · **2010–2026** · newest paper first

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What is in this PDF: every Chemical Equilibrium question we hold from past AP and TS EAPCET (called EAMCET until 2020 in Andhra Pradesh and 2023 in Telangana) papers, with its options and answer. Where an answer comes from a source other than the official final key, it says so next to the answer.

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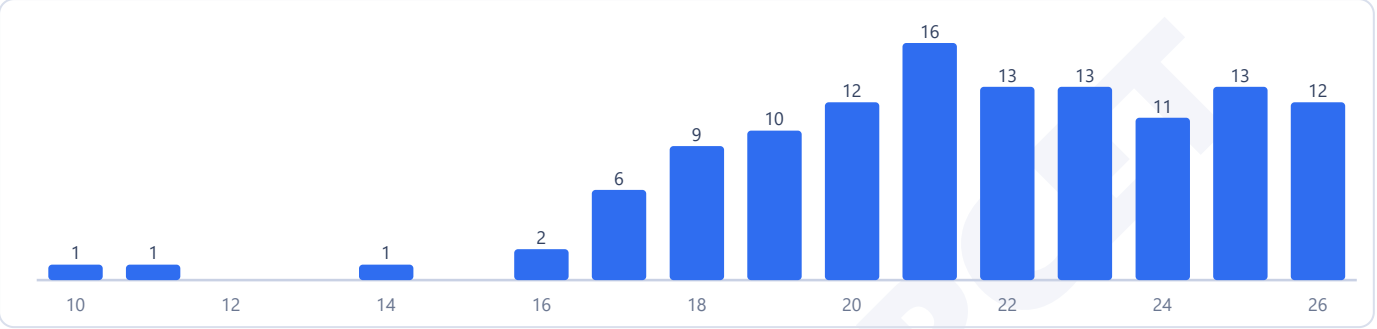
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Chapter at a glance

2%	120	60 of 77	120 / 0
of Chemistry questions, 2022–2026	questions, 2010–2026	papers asked it, 2022–2026	MCQ / numerical, 2010–2026

Trend. Steady: 0.8 questions per paper in 2024–2026 against 0.8 in 2022–2023.

Questions per year



Counts are the questions we hold: 120 in 110 papers. 2 questions in this chapter came back in more than one paper.

Most-asked topics in this chapter (2010–2026)

Equilibrium Constant	59
Equilibrium Calculations	45
Le Chatelier's Principle	16

How often it comes up

Chemical Equilibrium holds rank 24 among all 31 chemistry chapters in the recent 2022 to 2026 examination span. Across the full historical archive spanning 2010 through 2026, the chapter contributed 120 questions across 149 papers, appearing in 110 of those tests to record a 2.0 percent subject share and 0.8 questions per paper. In the modern timeframe from 2022 to 2026, it maintained this consistent rhythm with 62 questions across 77 sittings, featuring in 60 papers to post 0.8 questions per paper and a 2.0 percent share.

The chapter has appeared in every exam year since 2022, although it was absent from seventeen papers across that five-year period. State distributions between 2022 and 2026 show that AP papers gathered 45 questions across 48 sittings (appearing in 43 papers, 0.9 questions per paper, 2.3 percent share), while TS papers recorded 17 questions across 29 sittings (appearing in 17 papers, 0.6 questions per paper, 1.5 percent share).

In earlier testing from 2010 through 2021, papers included 58 questions across 72 sittings (appearing in 50 papers), which also yielded 0.8 questions per paper and a 2.0 percent subject share. Across the most recent three exam years from 2024 to 2026, question writers set 36 questions across 46 sittings (appearing in 36 papers), delivering 0.8 questions per paper and a 2.0 percent share. Evaluating trend patterns shows that the share early versus the last three years is about the same, and the share recent versus the last three years is also about the same.

Most-asked topics

Questions in this chapter focus on quantitative equilibrium relationships and qualitative system responses:

- **Equilibrium Calculations** leads modern testing with 45 questions overall and 33 across the recent window through 2026. Questions require you to set up algebraic tables relating initial quantities, extent of reaction, and equilibrium partial pressures or molar concentrations.
- **Equilibrium Constant** provided 59 questions across the archive, with 23 appearing from 2022 to 2026. Core topics include manipulating equilibrium constants when reversing reactions or multiplying coefficients,

connecting Kp and Kc via the ideal gas relation, and relating reaction quotients to equilibrium constants.

- **Le Chatelier's Principle** accounts for 16 questions overall, with 6 occurring between 2022 and 2026 (last tested in 2023). Problems examine shifts caused by altering pressure, temperature, component concentrations, or adding inert gases at constant volume versus constant pressure.

What the questions look like

Most questions demand setting up algebraic expressions for homogeneous gaseous reactions. A classic format asks for the relationship between the degree of dissociation and Kp for the decomposition of phosphorus pentachloride or dinitrogen tetroxide, often asking for Kp in terms of total equilibrium pressure. Another frequent variant presents heterogeneous equilibria, such as the decomposition of solid mercury oxide or calcium carbonate, where pure solids do not appear in the equilibrium expression.

You will also encounter comparative problems where two different reactions share an identical degree of dissociation, and you must calculate the ratio of their total pressures from their equilibrium constants. Mathematical manipulations of K are equally prominent, asking how the numerical value changes when an equation is multiplied by a fractional factor or inverted.

How to practise it

Master the connection between Kp and Kc given by Kp equals Kc open parenthesis R T close parenthesis to the power of delta n. Always check the sign and magnitude of delta n by counting only gaseous moles. If delta n is zero, Kp equals Kc and equilibrium compositions remain unchanged by pressure fluctuations or volume expansions.

Build speed in writing standard dissociation grids. For a reaction starting with one mole of reactant that dissociates to degree alpha, express the equilibrium moles of each species, sum them to obtain total moles, and express partial pressure as mole fraction times total pressure. Practise simplifying expressions when alpha is negligible compared to one, but always verify whether the numerical values warrant that approximation.

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Q1 AP EAPCET 2026 · 18 May · Shift 1 MCQ

At 450 K, for the reaction $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$, the value of K_p is 2.0×10^{10}.
What is the value of K_c for the decomposition of sulphur trioxide at the same temperature?
[R=0.083 L bar mol^{-1} K^{-1}]

(A) 7.47×10^{11}
(B) 1.34×10^{-12}
(C) 7.47×10^{-12}
(D) 1.34×10^{12}

Answer: (B) 1.34×10^{-12} · The council's preliminary key

Q2 AP EAPCET 2026 · 18 May · Shift 2 MCQ

At T(K), in a 10 L flask, the following equilibrium is established

$$2\ SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$$

The value of K_c for this reaction is 100. At equilibrium, the number of moles of $SO_3(g)$ is equal to twice the number of moles of $SO_2(g)$. What is the number of moles of $O_2(g)$ at equilibrium?

(A) 0.04
(B) 0.4
(C) 0.02
(D) 0.2

Answer: (B) 0.4 · The council's preliminary key

Q3 AP EAPCET 2026 · 15 May · Shift 1 MCQ

Observe the following reaction

$$A(g) + B(g) \overset{T(K)}{\rightleftharpoons} C(g)$$

In a 1L closed flask, 2 moles of $A(g)$ and 1 mole of $B(g)$ were taken and heated to $T(K)$. At equilibrium, the concentration of $B(g)$ is equal to twice the equilibrium concentration of $C(g)$. What is the value of K_c?

(A) 0.3
(B) 0.6
(C) 1.2
(D) 1.5

Answer: (A) 0.3 · The council's preliminary key

Q4 AP EAPCET 2026 · 15 May · Shift 2 MCQ

At $T(K)$ in a $10.0\ L$ flask, 2 moles of $N_2O_4(g)$ was heated. At equilibrium 20% of $N_2O_4(g)$ was dissociated into $NO_2(g)$. What is the K_c for this reaction?

(A) 2×10^{-2}
(B) 4×10^{-2}
(C) 3×10^{-2}
(D) 6×10^{-2}

Answer: (B) 4×10^{-2} · The council's preliminary key

Q5 AP EAPCET 2026 · 14 May · Shift 1 MCQ

Observe the following reaction

$$\mathrm{A(g) + B(g) \overset{T(K)}{\rightleftharpoons} C(g) + D(g)}$$

In a 1L closed flask, 2 moles of A(g) and 1 mole of B(g) were taken and heated to T(K). At equilibrium, the concentration of C(g) is thrice the concentration of B(g). what is the value of $\mathrm{K_c}$?

(A) 7.2
(B) 3.6
(C) 0.9
(D) 1.8

Answer: (D) 1.8 · The council's preliminary key

Q6 AP EAPCET 2026 · 14 May · Shift 2 MCQ

At T(K), 15 moles of $\mathrm{H_2}$ reacts with 5.2 moles of $\mathrm{I_2}$ and forms 10 moles of HI. The equilibrium constant for the reaction $2\mathrm{HI}(g) \rightleftharpoons \mathrm{H_2}(g) + \mathrm{I_2}(g)$ is

(A) 50
(B) 100
(C) 2×10^{-2}
(D) 1×10^{-2}

Answer: (C) 2×10^{-2} · The council's preliminary key

Q7 AP EAPCET 2026 · 13 May · Shift 1 MCQ

For the reaction $2\mathrm{HI}(g) \rightleftharpoons \mathrm{H_2}(g) + \mathrm{I_2}(g)$, the correct expression relating the degree of dissociation (α) of HI and equilibrium constant K_p is

(A) $\alpha = \dfrac{1+2\sqrt{K_p}}{2}$

(B) $\alpha = \sqrt{1+\dfrac{2K_p}{2}}$

(C) $\alpha = \dfrac{2\sqrt{K_p}}{1+2\sqrt{K_p}}$

(D) $\alpha = \sqrt{\dfrac{2K_p}{1+2K_p}}$

Answer: (C) $\alpha = \dfrac{2\sqrt{K_p}}{1+2\sqrt{K_p}}$ · The council's preliminary key

Q8 AP EAPCET 2026 · 13 May · Shift 2 MCQ

At $T\ (K)$ in a closed $2.0\ L$ vessel, 1 mole of $\mathrm{H_2}$ and 2 moles of $\mathrm{I_2}$ are taken initially and allowed to react till equilibrium is established. At equilibrium, the number of moles of $\mathrm{H_2}$ is found to be 0.2. The equilibrium constant for the dissociation of HI is

(A) 1.066×10^{1}

(B) 93.75×10^{-2}

(C) 2.132×10^{2}

(D) 9.375×10^{-2}

Answer: (D) 9.375×10^{-2} · The council's preliminary key

Q9 AP EAPCET 2026 · 12 May · Shift 1 MCQ

The equilibrium constants K_{P_1} and K_{P_2} for the gaseous reactions, $X \rightleftharpoons 2Y$ and $Z \rightleftharpoons P+Q$ respectively are in the ratio of $1:9$. If the degree of dissociation of X and Z are equal, then the ratio of their total pressures at these equilibria is

(A) $1:36$

(B) $1:3$

(C) $9:1$

(D) $4:1$

Answer: (A) $1:36$ · The council's preliminary key

Q10 AP EAPCET 2026 · 12 May · Shift 2 MCQ

At $540\ K$, $0.1\ mol$ of PCl_5 is heated in a $8.0\ L$ flask. The total pressure of the equilibrium mixture is $1\ atm$. The K_p (in atm) for the reaction is
$(R = 0.082\ L\ atm\ K^{-1}mol^{-1})$

(A) 1.77
(B) 0.77
(C) 2.77
(D) 3.77

Answer: (A) 1.77 · The council's preliminary key

Q11 TS EAPCET 2026 · 10 May · Shift 2 MCQ

At T(K) consider the following equilibrium reaction

$\mathrm{HgO\,(s) \rightleftharpoons Hg\,(g) + \frac{1}{2}O_2\,(g)}$

The correct relation between $\mathrm{K_p}$ and $\mathrm{P_{Total}}$ $(\mathrm{P_T})$ is

(A) $\mathrm{K_p = \frac{2}{3^{1/2}} \cdot P_T^{1/2}}$
(B) $\mathrm{K_p = \frac{2}{3^{3/2}} \cdot P_T^{3/2}}$
(C) $\mathrm{K_p = \frac{2}{3^{2/3}} \cdot P_T^{2/3}}$
(D) $\mathrm{K_p = \frac{1}{3^{2/3}} \cdot P_T}$

Answer: (B) $\mathrm{K_p = \frac{2}{3^{3/2}} \cdot P_T^{3/2}}$ · The council's preliminary key

Q12 TS EAPCET 2026 · 9 May · Shift 2 MCQ

The following equilibrium is established at 1100 K in a closed V L flask

$$\mathrm{C(s) + CO_2(g) \rightleftharpoons 2CO(g)}$$

The pressure of equilibrium mixture is 1 atm. Among the gaseous compounds, CO has 84% by mass. $\mathrm{K_c}$ of this reaction is (approximately) $(\mathrm{R = 0.082\ L\ atm\ mol^{-1}K^{-1}})$

(Assume that CO and $\mathrm{CO_2}$ are ideal gases)

(A) 10×10^{-2}
(B) 3×10^{-2}
(C) 1×10^{-2}
(D) 8×10^{-2}

Answer: (D) 8×10^{-2} · The council's preliminary key

Q13 AP EAPCET 2025 · 27 May · Shift 1 MCQ

Consider the following equilibrium reaction in gaseous state at T(K).

$$\mathrm{A + 2B \rightleftharpoons 2C + D}$$

The initial concentration of B is 1.5 times that of A. At equilibrium, the concentrations of A and B are equal. The equilibrium constant for the reaction is

(A) 6
(B) 16
(C) 12
(D) 4

Answer: (D) 4 · The council's preliminary key

Q14 AP EAPCET 2025 · 26 May · Shift 1 MCQ

At T(K), K_c value of $AO_2(g) + BO_2(g) \rightleftharpoons AO_3(g) + BO(g)$ is 16. In a closed 1 L flask, one mole each of AO_2, BO_2, AO_3 and BO are taken and heated to T(K). Identify the correct statements about this equilibrium.

I) Total number of moles at equilibrium is 4

II) At equilibrium, the ratio of moles of AO_2 and AO_3 is 1 : 4

III) Total number of moles of AO_2 and BO_2 at equilibrium is 0.8

(A) I, II only
(B) I, III only
(C) II, III only
(D) I, II, III

Answer: (D) I, II, III · The council's preliminary key

Q15 AP EAPCET 2025 · 26 May · Shift 2 MCQ

For the following given equilibrium reaction $\frac{K_c}{K_p}$ is equal to 1076 at T(K). What is the value of T (in K) ? (R = 0.082 L-atm K^{-1} mol^{-1})

$$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$$

(A) 500
(B) 600
(C) 400
(D) 450

Answer: (C) 400 · The council's preliminary key

Q16 AP EAPCET 2025 · 24 May · Shift 1 MCQ

At T(K), consider the following gaseous reaction, which is in equilibrium.

$$N_2O_5 \rightleftharpoons 2NO_2 + \frac{1}{2}O_2$$

What is the fraction of N_2O_5 decomposed at constant volume and temperature, if the initial pressure is 300 mm Hg and pressure at equilibrium is 480 mm Hg? (Assume all gases as ideal)

(A) 0.2
(B) 0.6
(C) 0.4
(D) 0.8

Answer: (C) 0.4 · The council's preliminary key

Q17 AP EAPCET 2025 · 23 May · Shift 1 MCQ

Consider the following gaseous equilibrium reactions (I), (II) and (III) with equilibrium constants K_1, K_2 and K_3 respectively

I) $\frac{1}{2}N_2 + \frac{3}{2}H_2 \rightleftharpoons NH_3$

II) $2NO \rightleftharpoons N_2 + O_2$

III) $H_2 + \frac{1}{2}O_2 \rightleftharpoons H_2O$

The correct expression for the equilibrium constant for the gaseous equilibrium reaction $2NH_3 + \frac{5}{2}O_2 \rightleftharpoons 2NO + 3H_2O$ is

(A) $\frac{K_3^2}{K_1 \times K_2}$
(B) $\frac{K_3^3}{K_1^2 \times K_2}$
(C) $\frac{K_3^2}{K_1^2 \times K_2}$
(D) $\frac{K_3}{K_1^{1/2} \times K_2^2}$

Answer: (B) $\frac{K_3^3}{K_1^2 \times K_2}$ · The council's preliminary key

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Q18 AP EAPCET 2025 · 23 May · Shift 2 MCQ

At 298 K, the value of K_p for $N_2O_4(g) \rightleftharpoons 2NO_2(g)$ is 0.113 atm. The partial pressure of N_2O_4 at equilibrium is 0.2 atm. What is the partial pressure (in atm) of NO_2 at equilibrium ?

(A) 0.05
(B) 0.075
(C) 0.30
(D) 0.15

Answer: (D) 0.15 · The council's preliminary key

Q19 AP EAPCET 2025 · 22 May · Shift 1 MCQ

At T(K), K_c value for $AO_2(g) + BO_2(g) \rightleftharpoons AO_3(g) + BO(g)$ is 16. In a closed 1 L flask, one mole each of AO_2, BO_2, AO_3 and BO are taken and heated to T(K). What is the concentration (in $mol\ L^{-1}$) of AO_3 at equilibrium?

(A) 0.4
(B) 0.6
(C) 1.6
(D) 1.4

Answer: (C) 1.6 · The council's preliminary key

Q20 AP EAPCET 2025 · 22 May · Shift 2 MCQ

At T(K), the following gaseous equilibrium is established.

$$\mathrm{W} + \mathrm{X} \rightleftharpoons \mathrm{Y} + \mathrm{Z}$$

The initial concentration of W is two times to the initial concentration of X. The system is heated to T(K) to establish the equilibrium. At equilibrium the concentration of Y is four times to the concentration of X. What is the value of $\mathrm{K_c}$?

(A) 0.375
(B) 1.333
(C) 2.666
(D) 5.333

Answer: (C) 2.666 · The council's preliminary key

Q21 AP EAPCET 2025 · 21 May · Shift 1 MCQ

The following equilibrium is established at STP.

$\mathrm{B_2(g)} \rightleftharpoons 2\mathrm{B(g)}$

Atoms of B occupy 20% of total volume at STP. The total pressure of the system is 1 bar. What is its $\mathrm{K_p}$? (STP volume = 22.7 L)

(A) 0.05
(B) 0.1
(C) 0.5
(D) 0.025

Answer: (A) 0.05 · The council's preliminary key

Q22 AP EAPCET 2025 · 21 May · Shift 2 MCQ

At 298 K, the value of $\mathrm{K_c}$ for the following reaction is x mol $\mathrm{L^{-1}}$. What is the approximate $\mathrm{K_p}$ value for this reaction ?

(R = 0.082 L atm $\mathrm{mol^{-1}\ K^{-1}}$).

$$\mathrm{A_2O_4(g)} \rightleftharpoons 2\mathrm{AO_2(g)}$$

(A) $24.4x$
(B) $12.2x$
(C) $\frac{x}{24.4}$
(D) $\frac{24.4}{x}$

Answer: (A) $24.4x$ · The council's preliminary key

Q23 TS EAPCET 2025 · 4 May · Shift 2 MCQ

At T(K), K_p value for the reaction, $2AO_2(g) + O_2(g) \rightleftharpoons 2AO_3(g)$ is 4×10^{10}.

What is the K_p' value for $3AO_2(g) + \frac{3}{2}O_2(g) \rightleftharpoons 3AO_3(g)$ at T(K)?

(A) 16×10^{20}
(B) 8×10^{20}
(C) 16×10^{15}
(D) 8×10^{15}

Answer: (D) 8×10^{15} · The council's preliminary key

Q24 TS EAPCET 2025 · 2 May · Shift 1 MCQ

For the reaction $N_2O_4(g) \rightleftharpoons 2NO_2(g)$, the correct relation between degree of dissociation (α) of $N_2O_4(g)$ and equilibrium constant, K_p is
(P = total pressure of mixture)

(A) $\alpha = \dfrac{K_p/P}{4 + \dfrac{K_p}{P}}$
(B) $\alpha = \dfrac{K_p}{4 + K_p}$
(C) $\alpha = \left(\dfrac{K_p/P}{4 + \dfrac{K_p}{P}}\right)^{1/2}$
(D) $\alpha = \left(\dfrac{K_p}{4 + K_p}\right)^{1/2}$

Answer: (C) $\alpha = \left(\dfrac{K_p/P}{4 + \dfrac{K_p}{P}}\right)^{1/2}$ · The council's preliminary key

Q25 TS EAPCET 2025 · 2 May · Shift 2 MCQ

At 1000 K, the equilibrium constant for the reaction

$CO_2(g) + H_2(g) \rightleftharpoons CO(g) + H_2O(g)$ is 0.53. In a one litre vessel, at equilibrium the mixture contains 0.25 mole of CO, 0.5 mole of CO_2, 0.6 mole of H_2 and x moles of H_2O. The value of x is

(A) 0.563
(B) 0.363
(C) 0.636
(D) 0.736

Answer: (C) 0.636 · The council's preliminary key

Q26 AP EAPCET 2024 · 23 May · Shift 1 MCQ

At 300 K, K_c for the reaction,

$$A_2B_2(g) \rightleftharpoons A_2(g) + B_2(g)$$

is 100 $mol\ L^{-1}$. What is its K_p (in atm) at the same temperature? (R = 0.082 L atm $mol^{-1}\ K^{-1}$)

(A) 100
(B) 2460
(C) 4.06
(D) 246

Answer: (B) 2460 · The council's preliminary key

Q27 AP EAPCET 2024 · 22 May · Shift 1 MCQ

At equilibrium for the reaction

$A_2(g) + B_2(g) \rightleftharpoons 2\,AB(g)$

the concentrations of A_2, B_2 and AB respectively are 1.5×10^{-3} M, 2.1×10^{-3} M and 1.4×10^{-3} M in a sealed vessel at 800 K. What will be K_p for the decomposition of AB at same temperature?

(A) 0.62
(B) 1.6
(C) 0.44
(D) 2.27

Answer: (B) 1.6 · The council's preliminary key

Q28 AP EAPCET 2024 · 21 May · Shift 1 MCQ

K_c for the reaction,

$$A_2(g) \overset{T(K)}{\rightleftharpoons} B_2(g)$$

is 39.0. In a closed one litre flask, one mole of $A_2(g)$ was heated to T(K). What are the concentrations of $A_2(g)$ and $B_2(g)$ (in $mol\ L^{-1}$) respectively at equilibrium?

(A) 0.025, 0.975
(B) 0.975, 0.025
(C) 0.05, 0.95
(D) 0.02, 0.98

Answer: (A) 0.025, 0.975 · The council's preliminary key

Q29 AP EAPCET 2024 · 21 May · Shift 2 MCQ

15 moles of H_2 and 5.2 moles of I_2 are mixed and allowed to attain equilibrium at 773 K. At equilibrium, the number of moles of HI is found to be 10. The equilibrium constant for the dissociation of HI is

(A) 2×10^{-2}
(B) 50
(C) 2×10^{-1}
(D) 5.0

Answer: (A) 2×10^{-2} · The council's preliminary key

Q30 AP EAPCET 2024 · 20 May · Shift 1 MCQ

K_c for the reaction, $A_2(g) \overset{T(K)}{\rightleftharpoons} B_2(g)$ is 99.0. In a 1 L closed flask two moles of $B_2(g)$ is heated to T (K). What is the concentration of $B_2(g)$ (in $mol\ L^{-1}$) at equilibrium?

(A) 0.02
(B) 1.98
(C) 0.198
(D) 1.5

Answer: (B) 1.98 · The council's preliminary key

Q31 AP EAPCET 2024 · 20 May · Shift 2 MCQ

At T(K), the equilibrium constant for the reaction

$$H_2(g) + Br_2(g) \rightleftharpoons 2HBr(g)$$

is 1.6×10^5. If 10 bar of HBr is introduced into a sealed vessel at T(K), the equilibrium pressure of HBr (in bar) is approximately

(A) 10.20
(B) 10.95
(C) 9.95
(D) 11.95

Answer: (C) 9.95 · The council's preliminary key

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Q32 AP EAPCET 2024 · 19 May · Shift 2 MCQ

K_c for the following reaction is 99.0

$$\mathrm{A_2(g)} \overset{T(K)}{\rightleftharpoons} \mathrm{B_2(g)}$$

In a one litre flask, 2 moles of $\mathrm{A_2}$ was heated to T(K) and the above equilibrium is reached. The concentrations at equilibrium of $\mathrm{A_2}$ and $\mathrm{B_2}$ are $C_1(\mathrm{A_2})$ and $C_2(\mathrm{B_2})$ respectively. Now, one mole of $\mathrm{A_2}$ was added to flask and heated to T(K) to establish the equilibrium again. The concentrations of $\mathrm{A_2}$ and $\mathrm{B_2}$ are $C_3(\mathrm{A_2})$ and $C_4(\mathrm{B_2})$ respectively. What is the value of $C_3(\mathrm{A_2})$ in $\mathrm{mol\ L^{-1}}$?

(A) 1.98
(B) 0.01
(C) 0.03
(D) 2.97

Answer: (C) 0.03 · The council's preliminary key

Q33 AP EAPCET 2024 · 18 May · Shift 1 MCQ

At T (K), $\mathrm{K_c}$ for the reaction, $\mathrm{A_2}$ (g) $\rightleftharpoons$ $\mathrm{B_2}$ (g) is 99.0. Two moles of $\mathrm{A_2}$ (g) was heated to T (K) in a 1L closed flask to reach the above equilibrium. What are the concentrations (in mol $\mathrm{L^{-1}}$) of $\mathrm{A_2}$ (g) and $\mathrm{B_2}$ (g) respectively at equilibrium?

(A) 1.86, 0.0187
(B) 1.98, 0.02
(C) 0.0187, 1.86
(D) 0.02, 1.98

Answer: (D) 0.02, 1.98 · The council's preliminary key

Q34 TS EAPCET 2024 · 11 May · Shift 1 MCQ

At T(K) the equilibrium constants for the following two reactions are given below

$$2\mathrm{A(g)} \rightleftharpoons \mathrm{B(g)} + \mathrm{C(g)};\ K_1 = 16$$
$$2\mathrm{B(g)} + \mathrm{C(g)} \rightleftharpoons 2\mathrm{D(g)};\ K_2 = 25$$

What is the value of equilibrium constant (K) for the reaction given below at T(K)?

$$\mathrm{A(g)} + \frac{1}{2}\mathrm{B(g)} \rightleftharpoons \mathrm{D(g)}$$

(A) 100
(B) 50
(C) 20
(D) 75

Answer: (C) 20 · The council's preliminary key

Q35 TS EAPCET 2024 · 9 May · Shift 1 MCQ

At T(K), K_c for the reaction $AO_2(g) + BO_2(g) \rightleftharpoons AO_3(g) + BO(g)$ is 16. One mole each of reactants and products are taken in a 1L flask and heated to T(K), and equilibrium is established. What is the equilibrium concentration of BO (in mol L^{-1})?

(A) 1.6
(B) 0.4
(C) 1.2
(D) 0.8

Answer: (A) 1.6 · The council's preliminary key

Q36 TS EAPCET 2024 · 9 May · Shift 2 MCQ

At T(K), K_c for the dissociation of PCl_5 is 2×10^{-2} mol L^{-1}. The number of moles of PCl_5 that must be taken in 1.0 L flask at the same temperature to get 0.2 mol of chlorine at equilibrium is

(A) 2.2
(B) 1.1
(C) 1.8
(D) 4.4

Answer: (A) 2.2 · The council's preliminary key

Q37 AP EAPCET 2023 · 19 May · Shift 1 MCQ

At T(K), the K_p for the reaction $A_2B_6(g) \rightleftharpoons A_2B_4(g) + B_2(g)$ is 0.04 atm. The equilibrium pressure (in atm) of $A_2B_6(g)$ when it is placed in a flask at 4 atm pressure and allowed to come to above equilibrium is

(A) 0.362
(B) 0.380
(C) 3.62
(D) 2.62

Answer: (C) 3.62 · The council's preliminary key

Q38 AP EAPCET 2023 · 18 May · Shift 1 MCQ

At 1000 K, the value of K_c for the below reaction is 10 mol L^{-1}. Value of K_p (in atm) is

$A(g) \rightleftharpoons B(g) + C(g)$

(given R = 0.082 atm L mol^{-1} K^{-1})

(A) 82
(B) 0.82
(C) 8.2
(D) 820

Answer: (D) 820 · The council's preliminary key

Q39 AP EAPCET 2023 · 18 May · Shift 2 MCQ

Observe the following equilibrium

$$Fe^{3+}(aq) + SCN^{-}(aq) \rightleftharpoons [Fe(SCN)]^{2+}(aq)$$

yellow colourless deep red

Addition of aqueous oxalic acid solution to the above equilibrium

(A) Shifts the equilibrium towards the formation of $[Fe(SCN)]^{2+}$
(B) Deep red color increases
(C) Intensity of deep red color decreases
(D) No change in equilibrium

Answer: (C) Intensity of deep red color decreases · The council's preliminary key

Q40 AP EAPCET 2023 · 17 May · Shift 1 MCQ

One mole $H_2O(g)$ and one mole $CO(g)$ are taken in 1L flask and heated to 725K. At equilibrium, 40% (by mass) of water reacted with $CO(g)$ as follows.

$$H_2O(g) + CO(g) \rightleftharpoons H_2(g) + CO_2(g)$$

Its K_p value is

(A) 2.220
(B) 0.444
(C) 4.440
(D) 0.222

Answer: (B) 0.444 · The council's preliminary key

Q41 AP EAPCET 2023 · 17 May · Shift 2 MCQ

One mole of $A\,(g)$ is heated to $T\,(K)$ till the following equilibrium is obtained

$$A\,(g) \overset{T(K)}{\rightleftharpoons} B(g)$$

The equilibrium constant of this reaction is 10^{-1}. After reaching the equilibrium, 0.5 moles of $A\,(g)$ is added and heated. The equilibrium is again established. The value of $\frac{[A]}{[B]}$ is

(A) 10^{-1}
(B) 10
(C) 10^{-2}
(D) 100

Answer: (B) 10 · The council's preliminary key

Q42 AP EAPCET 2023 · 16 May · Shift 1 MCQ

One mole of $PCl_5(g)$ was heated in a 1L closed flask at 500 K. At equilibrium, 0.1 mole of $Cl_2(g)$ was formed. What is its K_p (in atm)?

(Given R=0.082 L atm $mol^{-1}K^{-1}$)

(A) 2.7×10^{-4}
(B) 0.455
(C) 0.0111
(D) 90.0

Answer: (B) 0.455 · The council's preliminary key

Q43 AP EAPCET 2023 · 16 May · Shift 2 MCQ

Observe the following equilibrium at T(K)

$$H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$$

Which one of the following does not disturb the above equilibrium?

(A) Addition of $H_2(g)$
(B) Removal of $HI(g)$
(C) Addition of $I_2(g)$
(D) Addition of $He(g)$

Answer: (D) Addition of $He(g)$ · The council's preliminary key

Q44 AP EAPCET 2023 · 15 May · Shift 1 MCQ

At T(K), the equilibrium constant for $A(g) \rightleftharpoons B(g)$ is 10^{-2}. If rate of forward reaction is $0.025\ mol\ L^{-1}\ s^{-1}$. The rate of backward reaction (in $mol\ L^{-1}\ s^{-1}$) is

(A) 4×10^{1}
(B) 2.5×10^{-4}
(C) 2.5×10^{-2}
(D) 5×10^{-2}

Answer: (C) 2.5×10^{-2} · The council's preliminary key

Q45 AP EAPCET 2023 · 15 May · Shift 1 MCQ

One mole $H_2O(g)$ and one mole $CO(g)$ are taken in 1L flask and heated to 725K. At equilibrium, 40% (by mass) of water reacted with $CO(g)$ as follows

$$H_2O(g) + CO(g) \rightleftharpoons H_2(g) + CO_2(g)$$

Its K_c value is

(A) 0.444
(B) 2.220
(C) 0.222
(D) 4.440

Answer: (A) 0.444 · The council's preliminary key

Q46 AP EAPCET 2023 · 15 May · Shift 2 MCQ

At T(K), the equilibrium constant for the reaction $a\,A(g) \rightleftharpoons b\,B(g)$ is K_c. If the reaction takes place in the following form $2a\,A(g) \rightleftharpoons 2b\,B(g)$ its equilibrium constant is K_c'. The correct relationship between K_c and K_c' is

(A) $K_c' = (K_c)^2$
(B) $K_c' = (K_c)^{1/2}$
(C) $K_c' = (K_c)^{-1}$
(D) $K_c' = K_c$

Answer: (A) $K_c' = (K_c)^2$ · The council's preliminary key

Q47 TS EAMCET 2023 · 13 May · Shift 1 MCQ

At T(K) when one mol of X and one mol of Y are heated in a 1 L flask, 0.5 moles of Z is formed at the equilibrium. The K_c value for the reaction is

$$X(g) + Y(g) \rightleftharpoons Z(g) + A(g)$$

(A) 0.5
(B) 1.0
(C) 0.75
(D) 0.82

Answer: (B) 1.0 · The council's preliminary key

Q48 TS EAMCET 2023 · 13 May · Shift 2 MCQ

At T (K), K_C value for the reaction $\frac{1}{3}N_2(g) + H_2(g) \rightleftharpoons \frac{2}{3}NH_3(g)$ is 50. The K_C value for the reaction $2NH_3(g) \rightleftharpoons N_2(g) + 3H_2(g)$ at the same temperature is

(A) 4×10^{-6}
(B) 8×10^{-6}
(C) 6×10^{-6}
(D) 8×10^{-3}

Answer: (B) 8×10^{-6} · The council's preliminary key

Q49 TS EAMCET 2023 · 12 May · Shift 2 MCQ

At 780 K and 10 atmosphere pressure the equilibrium constant for the reaction $2\mathrm{A(g)} \rightleftharpoons \mathrm{B(g)} + \mathrm{C(g)}$ is 3.52. At the same temperature and 7.04 atmosphere pressure, the equilibrium constant for the same reaction is

(A) 7.04
(B) 3.52
(C) 10.56
(D) 5.23

Answer: (B) 3.52 · The council's preliminary key

Q50 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

For the formation of ammonia from its constituent elements (1 mole of $\mathrm{N_2}$ and 3 moles of $\mathrm{H_2}$) in a closed vessel of volume V(L), the value of K_c is [units of K_c = $\mathrm{mol^{-2}L^2}$]

(A) $\frac{3x^2V^2}{9(1-x)^4}$
(B) $\frac{4xV^2}{9(1-x)^3}$
(C) $\frac{4x^2V^2}{27(1-x)^4}$
(D) $\frac{x^2V^2}{27(1-x)^3}$

Answer: (C) $\frac{4x^2V^2}{27(1-x)^4}$ · The council's preliminary key

Q51 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

Calculate the value of the equilibrium constant (K_P) for the reaction of oxygen gas oxidising ammonia gas to nitric oxide and water vapour. The pressure of each gas at equilibrium is 0.5 atm.

(A) 1.5 atm
(B) 0.5 atm
(C) 1 atm
(D) 2.5 atm

Answer: (B) 0.5 atm · The council's preliminary key

Q52 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

In which of the following reactions at equilibria, the position of the equilibrium shifts towards the products, if the total pressure is increased?

(i) $\mathrm{X_2(g) + 3Y_2(g) \rightleftharpoons 2XY_3(g)}$
(ii) $\mathrm{X_2(g) + Y_2(g) \rightleftharpoons 2XY(g)}$
(iii) $\mathrm{X_2(g) + Z_2(g) \rightleftharpoons 2XZ(g)}$
(iv) $\mathrm{X_2(g) + Y_4(g) \rightleftharpoons 2XY_2(g)}$

(A) (ii)
(B) (iii)
(C) (i)
(D) (iv)

Answer: (C) (i) · The council's preliminary key

Q53 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

The $\mathrm{K_p}$ value at equilibrium of $\mathrm{SO_3}$ formation reaction from $\mathrm{SO_2(g)}$ and $\mathrm{O_2(g)}$ is 5 $\mathrm{atm^{-1}}$. What is the equilibrium partial pressure of $\mathrm{O_2}$ if the equilibrium pressure of $\mathrm{SO_2}$ and $\mathrm{SO_3}$ are equal?

(A) 0.2 atm
(B) 0.4 atm
(C) 0.3 atm
(D) 0.1 atm

Answer: (A) 0.2 atm · The council's preliminary key

Q54 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

For a reaction $\mathrm{A(s) \rightleftharpoons B(s) + C(g)}$ the set of all correct statements are
a) K is independent of [A].
b) K is dependent on partial pressure of C at a given temperature.
c) ΔH will be independent of temperature.
d) ΔH is independent of the catalyst addition.

(A) a, b, c, d
(B) a, b only
(C) a, b, d only
(D) a, b, c only

Answer: (C) a, b, d only · The council's preliminary key

Q55 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

For the formation of ammonia gas from its constituent elements, the K_P/K_C is

(A) RT
(B) $\frac{1}{(RT)^2}$
(C) $\frac{1}{\sqrt{RT}}$
(D) 1

Answer: (B) $\frac{1}{(RT)^2}$ · The council's preliminary key

Q56 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

K_P/K_C for the reaction at T(K) is $CO(g) + \frac{1}{2}O_2(g) \rightleftharpoons CO_2(g)$

(A) $\sqrt{RT}$
(B) $2RT$
(C) RT
(D) $\frac{1}{\sqrt{RT}}$

Answer: (D) $\frac{1}{\sqrt{RT}}$ · The council's preliminary key

Q57 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

Assertion (A): For an endothermic dissolution process, increase in temperature increases the solubility in a nearly saturated solution.
Reason (R): In saturated solution dynamic equilibrium exists between dissolved solute and undissolved solute.

(A) Both (A) and (R) are correct and R is the correct explanation of A
(B) Both (A) and (R) are correct, but R is not the correct explanation of A
(C) (A) is correct but (R) is not correct
(D) (A) is incorrect but (R) is correct

Answer: (A) Both (A) and (R) are correct and R is the correct explanation of A · The council's preliminary key

Q58 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

For the formation of $\mathrm{NH_3(g)}$ from its constituent elements, which of the relation between the reaction quotient (Q) and equilibrium constant (K_C) is correct for the backward reaction

(A) $Q = K_C$
(B) $Q > K_C$
(C) $Q < K_C$
(D) $Q = K = 1$

Answer: (B) $Q > K_C$ · The council's preliminary key

Q59 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

For ammonia formation from constituent elements, the expression for $\mathrm{K_C}$ is

(A) $K_C = \frac{[NH_3]^3}{[N_2]^3[H_2]^3}$

(B) $K_C = \frac{[NH_3]^2}{[N_2][H_2]^3}$

(C) $K_C = \frac{[NH_3]}{[N_2][H_2]}$

(D) $K_C = [NH_3]^2$

Answer: (B) $K_C = \frac{[NH_3]^2}{[N_2][H_2]^3}$ · The council's preliminary key

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Q60 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

At 500 K, for the reaction, $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$, the K_p is 0.036 atm^{-2}. What is its K_c in $\text{L}^2\,\text{mol}^{-2}$? (R = 0.082 L atm $\text{mol}^{-1}\,\text{K}^{-1}$).

(A) 2.1×10^{-4}

(B) 2.1×10^{-5}

(C) 60.5

(D) 605

Answer: (C) 60.5 · The council's preliminary key

Q61 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

For a reaction

$A(g) + \frac{1}{2}B(g) \rightleftharpoons C(g) + \text{heat}$

favorable conditions for the reaction to occur in the forward direction are

(A) Low T and Low P

(B) Low T and high P

(C) High T and Low P

(D) High T and high P

Answer: (B) Low T and high P · The council's preliminary key

Q62 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

The formation of ammonia from its constituent elements is an exothermic reaction. The effect of increase temperature on the reaction equilibrium is

(A) The rate of the forward reaction becomes zero

(B) No effect of temperature.

(C) Forward reaction is favored

(D) Backward reaction is favored

Answer: (D) Backward reaction is favored · The council's preliminary key

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Q63 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

Using the data given below, find the expression for equilibrium constant 'K' for the reaction $2\,NH_3 + \frac{5}{2}O_2 \rightleftharpoons 2\,NO + 3\,H_2O$

Equilibrium constant for the reaction $2\,NH_3 \rightleftharpoons N_2 + 3H_2$ is K_1

Equilibrium constant for the reaction $2\,NO \rightleftharpoons N_2 + O_2$ is K_2

Equilibrium constant for the reaction $\frac{1}{2}O_2 + H_2 \rightleftharpoons H_2O$ is K_3

(A) $\frac{K_1K_3^3}{K_2}$

(B) $\frac{K_2K_3^3}{K_1}$

(C) $\frac{K_1K_2^3}{K_3}$

(D) $K_1 \cdot K_2 \cdot K_3$

Answer: (A) $\frac{K_1K_3^3}{K_2}$ · The council's preliminary key

Q64 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

Given K_p for the reaction $\frac{1}{2}\mathrm{C}_{(g)} \rightleftharpoons \frac{1}{2}\mathrm{A}_{(g)} + \frac{1}{2}\mathrm{B}_{(g)}$ at a fixed temperature is $0.25\ atm^{-2}$. Then find the K_p for the reaction $\mathrm{A}_{(g)} + \mathrm{B}_{(g)} \rightleftharpoons \mathrm{C}_{(g)}$ at the same temperature.

(A) 16

(B) 25

(C) 9

(D) 36

Answer: (A) 16 · The council's preliminary key

Q65 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

Which of the following statements is true when equilibrium is established in the reaction? $A + B \rightleftharpoons C + D,\ K_c = 10$

(A) $[C][D] = [A][B]$

(B) $[C] = [A]\ \&\ [B] = [D]$

(C) $[A][B] = 0.1\,[C][D]$

(D) $[A] = [B] = [C] = [D] = 10M$

Answer: (C) $[A][B] = 0.1\,[C][D]$ · The council's preliminary key

Q66 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

The reaction $\mathrm{N}_{2(g)} + 3\,\mathrm{H}_{2(g)} \rightleftharpoons 2\,\mathrm{NH}_{3(g)}$ is exothermic and reversible. A mixture of $\mathrm{N}_{2(g)}, \mathrm{H}_{2(g)}$ and $\mathrm{NH}_{3(g)}$ is at equilibrium in a closed container. When a certain quantity of extra $\mathrm{H}_{2(g)}$ is introduced into the container, while keeping the volume constant, then which statement among the following is true?

(A) The pressure inside the container will not change
(B) Equilibrium condition will not change
(C) The temperature will increase
(D) The temperature will decrease

Answer: (C) The temperature will increase · The council's preliminary key

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Q67 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

Identify the correct expression for the equilibrium constant of the following reaction: $2X_{(g)} + Y_{(g)} \rightleftharpoons 3Z_{(g)}$

(A) $K = \frac{[X]^2[Y]}{[Z]^3}$
(B) $K = \frac{[Z]^3}{[X]^2[Y]}$
(C) $K = \frac{3[Z]}{2[X][Y]}$
(D) $K = [Z]^3[X]^2[Y]$

Answer: (B) $K = \frac{[Z]^3}{[X]^2[Y]}$ · The council's preliminary key

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Q68 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

When the reaction $A + 2B \rightleftharpoons 2C + D$ was studied, it was observed that the initial concentration of B was 1.5 times that of A, and the equilibrium concentrations of A and C were equal. Then K_c for the given equilibrium equals _____

(A) 4.1
(B) 0.3
(C) 2.5
(D) 1.8

Answer: (B) 0.3 · The council's preliminary key

Q69 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

Le-Chateliar's (sic) principle is not applicable to _____

(A) $H_{2(g)} + I_{2(g)} \rightleftharpoons 2HI_{(g)}$
(B) $Fe_{(s)} + S_{(s)} \rightleftharpoons FeS_{(s)}$
(C) $N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)}$
(D) $N_{2(g)} + O_{2(g)} \rightleftharpoons 2NO_{(g)}$

Answer: (B) $Fe_{(s)} + S_{(s)} \rightleftharpoons FeS_{(s)}$ · The council's preliminary key

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Q70 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

For the reaction $SO_{2(g)} + \frac{1}{2}O_{2(g)} \rightleftharpoons SO_{3(g)}$, the percentage yield of product at different pressures is shown in the figure. Then, which among the following is true?

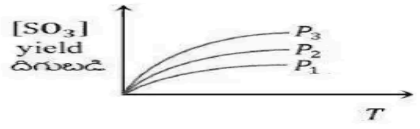
(see the figure above)

Mandatory : No

AP EAPCET 2021

AP EAPCET 2021

For the reaction $SO_{2(g)} + \frac{1}{2}O_{2(g)} \rightleftharpoons SO_{3(g)}$, the percentage yield of product at different pressures is shown in the figure. Then, which among the following is true?



$SO_{2(g)} + \frac{1}{2}O_{2(g)} \rightleftharpoons SO_{3(g)}$ అనే చర్యలో ఉత్పన్నము దిగుబడి శాతము వివిధ పీడనాల వద్ద పటములో చూపబడినది. క్రింది వాటిలో ఏ ఎంపిక సరైనది?

Options :

1. Pressure has no effect
   పీడన ప్రభావము ఉండదు
2. $P_1 < P_2 < P_3$
3. $P_1 > P_2 > P_3$
4. $P_1 = P_2 = P_3 \neq 0$

(A) Pressure has no effect

(B) $P_1 < P_2 < P_3$

(C) $P_1 > P_2 > P_3$

(D) $P_1 = P_2 = P_3 \neq 0$

Answer: (B) $P_1 < P_2 < P_3$ · Checked by our team

Q71 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

Which among the following denotes the correct relationship between K_p and K_c for the reaction $2\ A_{(g)} \rightleftharpoons B_{(g)} + C_{(g)}$

(A) $K_p > K_c$

(B) $K_c > K_p$

(C) $K_c = (K_p)^2$

(D) $K_p = K_c$

Answer: (D) $K_p = K_c$ · The council's preliminary key

Q72 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

For the reaction $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$

(A) $K_p = K_c \neq 0$

(B) $K_P > K_C$

(C) $K_P < K_C$

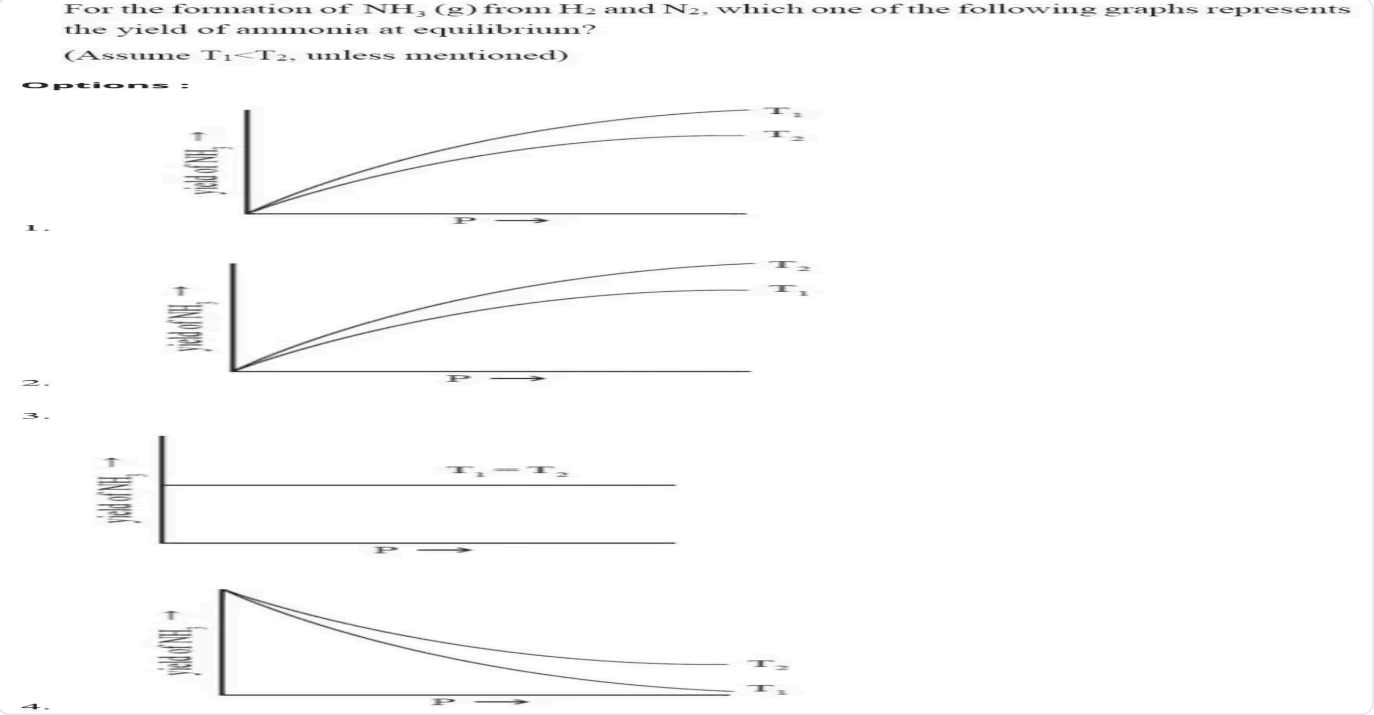
(D) $K_P = K_C = 0$

Answer: (A) $K_p = K_c \neq 0$ · The council's preliminary key

Q73 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

For the formation of NH_3 (g) from H_2 and N_2, which one of the following graphs represents the yield of ammonia at equilibrium? (Assume $T_1 < T_2$, unless mentioned)

(see the figure above)



(A) *see figure*

(B) *see figure*

(C) *see figure*

(D) *see figure*

Answer: (A) · The council's preliminary key

Q74 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

For the formation of NH_3 (g) from its constituent elements, the favourable conditions for its formation are

(A) High pressure and low temperature
(B) High pressure and high temperature
(C) Low pressure and high temperature
(D) Low pressure and low temperature

Answer: (A) High pressure and low temperature · The council's preliminary key

Q75 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

The equilibrium constant (K_p) for the formation of ammonia from its constituent elements at $27\ ^\circ\mathrm{C}$ is 1.2×10^{-4} and at $127\ ^\circ\mathrm{C}$ is 0.60×10^{-4}. Calculate the mean heat of formation of ammonia per mole in this temperature range.

(A) -82.64 Cal
(B) -826.4 Cal
(C) -1652.8 Cal
(D) -165.2 Cal

Options (2) or (3) were accepted. More than one answer was accepted. · The council's preliminary key

Q76 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

For a reaction $2\mathrm{A} \rightleftharpoons \mathrm{B} + \mathrm{C}$, K_c is 2×10^{-3}. At a given time, the reaction mixture has $[\mathrm{A}] = [\mathrm{B}] = [\mathrm{C}] = 3 \times 10^{-4}$ M. Which of the following options is correct?

(A) The system is at equilibrium
(B) The reaction proceeds to the left
(C) The reaction proceeds to the right
(D) The reaction is complete

Answer: (B) The reaction proceeds to the left · The council's preliminary key

Q77 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

The equilibrium constant for the reaction is $\mathrm{P_4(s) + 5O_2(g) \rightleftharpoons P_4O_{10}(s)}$

(A) $K_c = \sqrt{5O_2}$
(B) $K_c = [\mathrm{P_4O_{10}}]/[\mathrm{P_4}][\mathrm{O_2}]^5$
(C) $K_c = [\mathrm{O_2}]^5$
(D) $K_c = \frac{1}{[\mathrm{O_2}]^5}$

Answer: (D) $K_c = \frac{1}{[\mathrm{O_2}]^5}$ · The council's preliminary key

Q78 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

For the reaction $\mathrm{A_{(g)} \rightleftharpoons B_{(g)} + C_{(g)}}$, A is 33 % dissociated at a total pressure P. The correct relation between P and K_p is

(A) $P = K_p$
(B) $P = \frac{1}{4}K_p$
(C) $P = 8K_p$
(D) $P = 2K_p$

Answer: (C) $P = 8K_p$ · The council's preliminary key

Q79 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

The supply of oxygen to tissues by blood, can be explained by

(A) Le-Chatliar's principle
(B) Boyle's law
(C) Charle's law
(D) Dalton's law

Answer: (A) Le-Chatliar's principle · The council's preliminary key

Q80 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

For a reversible reaction, if the concentration of reactants is increased, the equilibrium constant of the reaction _____

(A) Increases
(B) Remains constant
(C) Decreases
(D) Depends on amount of reactant

Answer: (B) Remains constant · Checked by our team

Q81 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

For a reversible reaction, if the concentration of the reactants is reduced to half, the equilibrium constant will be _____

(A) Doubled
(B) Halved
(C) Reduced to one-fourth
(D) Remains same

Answer: (D) Remains same · The council's preliminary key

Q82 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

For the reaction $NO_2 + CO \rightleftharpoons NO + CO_2$ one mole of NO_2 and 2 moles of CO were kept in a vessel. Calculate the equilibrium constant K_p if at equilibrium 25% of initial amount CO is consumed.

(A) $\frac{1}{2}$
(B) $\frac{1}{3}$
(C) 1
(D) $\frac{1}{4}$

Answer: (B) $\frac{1}{3}$ · The council's preliminary key

Q83 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

For a given equilibrium reaction, addition of inert argon gas at constant volume can shift the equilibrium in
$\mathrm{N_2\,(g) + 3H_2\,(g) \rightleftharpoons 2NH_3\,(g)}$

(A) Forward direction
(B) Backward direction
(C) Remain unaffected
(D) initially forward and then backward direction

Answer: (C) Remain unaffected · Official TGCHE final key

Q84 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

For the given equilibrium reaction
$\mathrm{H_2\,(g) + I_2\,(g) \rightleftharpoons 2HI\,(g)}$
Choose the correct equation to calculate K_p.

(A) $K_p = K_c$
(B) $K_p = K_c\,(RT)$
(C) $K_p = K_c\,(RT)^{-2}$
(D) $K_p = K_c\,(RT)^{2}$

Answer: (A) $K_p = K_c$ · Official TGCHE final key

Q85 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

For a given reaction, $\mathrm{2A \rightleftharpoons B + C}$, the equilibrium constant is 2×10^{-3}. If at any given time the composition of the reaction mixture is $[\mathrm{A}] = [\mathrm{B}] = [\mathrm{C}] = 6 \times 10^{-5}\,\mathrm{M}$; predict in which direction the reaction will proceed and the correct value for reaction quotient.

(A) Forward direction and 1.0
(B) Backward direction and 1.0
(C) Forward direction and 3×10^{-5}
(D) Backward direction and 3×10^{-5}

Answer: (B) Backward direction and 1.0 · Official TGCHE final key

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Q86 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

Aqueous solution of ferric nitrate when mixed with aqueous solution of potassium thiocyanate gives red color solution. The intensity of red color becomes constant on attaining equilibrium.
Choose the correct statement when the following chemical is added to the above solution at equilibrium
(i) Oxalic acid (ii) Mercuric chloride

(A) Both (i) and (ii) will decrease the intensity of red color
(B) Both (i) and (ii) will increase the intensity of red color
(C) (i) will increase but (ii) will decrease the intensity of red color
(D) (i) will decrease but (ii) will increase the intensity of red color

Answer: (A) Both (i) and (ii) will decrease the intensity of red color · Official TGCHE final key

Q87 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

The vapour density of N_2O_4 in $N_2O_4 \rightleftharpoons 2NO_2$ is 40. The degree of dissociation is

(A) 1.25
(B) 2.50
(C) 1.50
(D) 0.15

Answer: (D) 0.15 · Official TGCHE final key

Q88 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

What is the equilibrium constant (K_c) for the given reaction? $N_2 + O_2 \rightleftharpoons 2NO$ Where the equilibrium concentration of N_2, O_2 and NO are found to be 4×10^{-3}, 3×10^{-3} and 3×10^{-3} M respectively.

(A) 0.750
(B) 0.622
(C) 9×10^{-3}
(D) 12.8×10^{-6}

Answer: (A) 0.750 · Official TGCHE final key

Q89 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

For the given equilibrium reaction,
$2A(g) \rightleftharpoons 2B(g) + C(g)$
the equilibrium constant (K_c) at 1000 K is 4×10^{-4}. Calculate K_p for the reaction at 800 K temperature

(A) 0.044
(B) 0.026
(C) 0.33
(D) 1

Answer: (B) 0.026 · Official TGCHE final key

Q90 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

If the equilibrium constant for the reaction $2SO_2 + O_2 \rightleftharpoons 2SO_3$ is 64 at 500 K, then the equilibrium constant for the reaction $SO_3 \rightleftharpoons SO_2 + \frac{1}{2}O_2$ at the same temperature is

(A) 8
(B) $\frac{1}{8}$
(C) 32
(D) $\frac{1}{64}$

Answer: (B) $\frac{1}{8}$ · Official TGCHE final key

Q91 TS EAMCET 2019 · 6 May · Shift 1 MCQ

In which of the following plots, an endothermic reaction is correctly represented?
(see the figure above)



(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (D) · Official TGCHE final key

Q92 TS EAMCET 2019 · 4 May · Shift 2 MCQ

Consider the equilibrium $H_2 + I_2 \rightleftharpoons 2HI$. Calculate the equilibrium constant of the reverse reaction when the equilibrium concentration of H_2, I_2 and HI are 1.14×10^{-2}, 0.12×10^{-2} and 2.52×10^{-2} mol L^{-1}, respectively

(A) 46.4
(B) 0.021
(C) 18.42
(D) 0.054

Answer: (B) 0.021 · Official TGCHE final key

Q93 TS EAMCET 2019 · 3 May · Shift 1 MCQ

For the reaction
$0.5\,C(s) + 0.5\,CO_2(g) \rightleftharpoons CO(g)$
the equilibrium pressure is 12 atm. If CO_2 conversion is 50%, the value of K_p, in atm is

(A) 4
(B) 1
(C) 0.5
(D) 2

Answer: (A) 4 · Official TGCHE final key

Q94 TS EAMCET 2019 · 3 May · Shift 2 MCQ

Match the following:
List - I (Reaction) List - II (K_p)
A) $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ at 298 K
B) $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ at 700 K
C) $N_2O_4(g) \rightleftharpoons 2NO_2(g)$ at 298 K
D) $N_2O_4(g) \rightleftharpoons 2NO_2(g)$ at 500 K
I) 0.98
II) 3.0×10^4
III) 1700
IV) 4.0×10^{24}

V) 6.8×10^{-5}

The correct answer is

(A) A-I, B-V, C-II, D-III

(B) A-V, B-III, C-IV, D-II

(C) A-IV, B-II, C-I, D-III

(D) A-IV, B-V, C-II, D-III

Answer: (C) A-IV, B-II, C-I, D-III · Official TGCHE final key

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Q95 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

18.4 g N_2O_4 was placed in 1L vessel at 400 K and allowed to attain the following equilibrium $N_2O_{4(g)} \rightleftharpoons 2NO_{2(g)}$.

If the total pressure at equilibrium was 10.64 bar, approximate K_p is

($R = 0.083$ L bar $K^{-1}mol^{-1}$)

(Assume N_2O_4, NO_2 as ideal gases)

(A) 57.20

(B) 24.24

(C) 14.30

(D) 6.64

Answer: (B) 24.24 · Official APSCHE final key

Q96 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

At 1000 K, the partial pressures of $CO_{2(g)}$ and $CO_{(g)}$ for the reaction $CO_{2(g)} + C_{(s)} \rightleftharpoons 2CO_{(g)}$ in a closed vessel at equilibrium are 0.15 and 0.60 bar respectively. The K_c for this reaction at the same temperature is approximately

(A) 2.0×10^{-4}

(B) 2.89×10^{-2}

(C) 2.89×10^{-3}

(D) 5.78×10^{-3}

Answer: (B) 2.89×10^{-2} · Official APSCHE final key

Q97 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

The equilibrium partial pressures of $CO_{(g)}$, $CO_{2(g)}$ in the equilibrium reaction $CO_{2(g)} + C_{(s)} \rightleftharpoons 2CO_{(g)}$ at 1000 K are 0.66 and 0.15 bar respectively. The equilibrium constant K_c approximately is

(A) 0.35
(B) 2.90
(C) 0.035
(D) 0.29

Answer: (C) 0.035 · Official APSCHE final key

Q98 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

The equilibrium constant at 850 K for the reaction $N_{2(g)} + O_{2(g)} \rightleftharpoons 2NO_{(g)}$ is 0.5625. The equilibrium concentration of $NO_{(g)}$ is 3.0×10^{-3} M. If the equilibrium concentrations of $N_{2(g)}$ and $O_{2(g)}$ are equal, the concentration of $N_{2(g)}$ in M

(A) 4.0×10^{-3}
(B) 4.0×10^{-2}
(C) 1.6×10^{-3}
(D) 3.0×10^{-3}

Answer: (A) 4.0×10^{-3} · Official APSCHE final key

Q99 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

The value of K_C for the equilibrium reaction
$CO_{2(g)} + C_{(s)} \rightleftharpoons 2CO_{(g)}$
at T (K) is 0.036. If the equilibrium concentration of $CO_{2(g)}$ is 0.004 M, the concentration of $CO_{(g)}$ in $mol\ L^{-1}$ is

(A) 3.6×10^{-2}
(B) 2.0×10^{-2}
(C) 1.2×10^{-2}
(D) 1.2×10^{-3}

Answer: (C) 1.2×10^{-2} · Official APSCHE final key

Q100 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

Observe the following equations
$NH_3 + Ag^+ \rightleftharpoons [Ag(NH_3)]^+$, $K_1 = 1.6 \times 10^3$
$[Ag(NH_3)]^+ + NH_3 \rightleftharpoons [Ag(NH_3)_2]^+$, $K_2 = 6.8 \times 10^3$
The equilibrium constant for the following reaction,
$Ag^+ + 2NH_3 \rightleftharpoons [Ag(NH_3)_2]^+$ is

(A) 6.008×10^3
(B) 1.088×10^7
(C) 1.088×10^6
(D) 1.028×10^3

Answer: (B) 1.088×10^7 · Official APSCHE final key

Q101 TS EAMCET 2018 · 7 May · Shift 1 MCQ

$PCl_5 \rightleftharpoons PCl_3 + Cl_2$
If the equilibrium constant (K_c) for the above reaction at 500 K is 1.79 and the equilibrium concentration of PCl_5 and PCl_3 are 1.41 M and 1.59 M, respectively, then the concentration of Cl_2 is approximately

(A) 1.26 M
(B) 3.59 M
(C) 0.59 M
(D) 1.59 M

Answer: (D) 1.59 M · The council's preliminary key

Q102 TS EAMCET 2018 · 5 May · Shift 1 MCQ

Consider the following reaction in a 1 L closed vessel.
$N_2 + 3H_2 \rightleftharpoons 2NH_3$
If all the species; N_2, H_2 and NH_3 are in 1 mole in the beginning of the reaction and equilibrium is attained after unreacted N_2 is 0.7 moles. What is the value of equilibrium constant.

(A) 3600.00
(B) 3657.14
(C) 2657.14
(D) 1828.57

Answer: (B) 3657.14 · The council's preliminary key

Q103 TS EAMCET 2018 · 4 May · Shift 1 MCQ

For a reaction $2A_{(g)} \rightleftharpoons 2B_{(g)} + C_{(g)}$, $K_c = 3.75 \times 10^{-6}$ at 1069 K. The approximate value of K_p for this reaction at the same temperature is
($R = 0.082\ L\ bar\ mol^{-1}K^{-1}$)

(A) 2.4×10^{-4}
(B) 3.3×10^{-4}
(C) 33×10^2
(D) 7.2×10^4

Answer: (B) 3.3×10^{-4} · The council's preliminary key

Q104 TS EAMCET 2018 · 4 May · Shift 2 MCQ

For the formation of NH_3 from N_2 and H_2 at 500 K, the concentration of N_2, H_2 and NH_3 at equilibrium are 1.5×10^{-2} M, 3.0×10^{-2} M, and 1.2×10^{-2} M, respectively. The equilibrium constant for the reverse reaction is

(A) 3.56×10^{2}
(B) 2.81×10^{-3}
(C) 3.56×10^{-2}
(D) 2.81×10^{3}

Answer: (B) 2.81×10^{-3} · The council's preliminary key

Q105 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

At T(K), the equilibrium constant of $H_{2(g)} + I_{2(g)} \rightleftharpoons 2HI_{(g)}$ is 49. If $[H_2]$, $[I_2]$ at equilibrium at the same temperature are 2.0×10^{-2} M and 8.0×10^{-2} M respectively, the [HI] at equilibrium in $mol\,L^{-1}$ is

(A) 2.8
(B) 0.28
(C) 0.14
(D) 1.4

Answer: (B) 0.28 · The council's preliminary key

Q106 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

The equilibrium concentrations of N_2, H_2 and NH_3 in the formation of NH_3 at 500 K are 1.25×10^{-2} M, 4.0×10^{-2} M and 1.6×10^{-2} M respectively. The equilibrium constant K_p at the same temperature is

(A) $3.2\,(RT)^{-2}$
(B) $32\,(RT)^{2}$
(C) $320\,(RT)^{2}$
(D) $320\,(RT)^{-2}$

Answer: (D) $320\,(RT)^{-2}$ · The council's preliminary key

Q107 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

For the gaseous reactions (I) and (II), the equilibrium constants are X and Y respectively.
I. $\frac{1}{2}N_{2(g)} + O_{2(g)} \rightleftharpoons NO_{2(g)}$
II. $2NO_{2(g)} \rightleftharpoons N_2O_{4(g)}$
Using the above reactions the equilibrium constant Z for the reaction (III) given below is
III. $N_2O_{4(g)} \rightleftharpoons N_{2(g)} + 2O_{2(g)}$

(A) $Z = XY$
(B) $Z = \frac{Y^2}{X}$
(C) $Z = \frac{1}{XY^2}$
(D) $Z = \frac{1}{X^2Y}$

Answer: (D) $Z = \frac{1}{X^2Y}$ · The council's preliminary key

Q108 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

At 1000 K, if the equilibrium constant K_p for the reaction $2NOCl_{(g)} \rightleftharpoons 2NO_{(g)} + Cl_{2(g)}$ is 4.157×10^{-4} bar, the K_c (in $mol\ L^{-1}$) is ($R = 0.083\ L\ bar\ K^{-1}\ mol^{-1}$)

(A) 4.16×10^{-7}
(B) 4.16×10^{-4}
(C) 5.0×10^{-4}
(D) 5.0×10^{-6}

Answer: (D) 5.0×10^{-6} · The council's preliminary key

Q109 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

At 1000 K, the equilibrium constant, K_c for the reaction $2NOCl_{(g)} \rightleftharpoons 2NO_{(g)} + Cl_{2(g)}$ is $4.0 \times 10^{-6}\ mol\,L^{-1}$. The K_p (in bar) at the same temperature is ($R = 0.083\ L\,bar\,K^{-1}\,mol^{-1}$)

(A) 3.32×10^{-6}
(B) 3.32×10^{4}
(C) 3.32×10^{-4}
(D) 3.32×10^{-3}

Answer: (C) 3.32×10^{-4} · The council's preliminary key

Q110 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

i) $H_3PO_4(aq) \rightleftharpoons H^+_{(aq)} + H_2PO^-_{4(aq)}$
ii) $H_2PO^-_{4(aq)} \rightleftharpoons H^+_{(aq)} + HPO^{2-}_{4\,(aq)}$
iii) $HPO^{2-}_{4\,(aq)} \rightleftharpoons H^+_{(aq)} + PO^{3-}_{4\,(aq)}$
The equilibrium constants for the above reactions at a certain temperature are K_1, K_2 and K_3 respectively. The equilibrium constant for the reaction $H_3PO_{4(aq)} \rightleftharpoons 3H^+_{(aq)} + PO^{3-}_{4\,(aq)}$ in terms of K_1, K_2 and K_3 is

(A) $K_1 + K_2 + K_3$
(B) $\dfrac{K_1}{K_2 + K_3}$
(C) $\dfrac{K_3}{K_1 K_2}$
(D) $K_1 K_2 K_3$

Answer: (D) $K_1 K_2 K_3$ · The council's preliminary key

Q111 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

The equilibrium constant (K_c) for the following equilibrium
$2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)}$
at 563 K is 100. At equilibrium, the number of moles of SO_3 in the 10 litre flask is twice the number of moles of SO_2, then the number of moles of oxygen is

(A) 0.3
(B) 0.4
(C) 0.1
(D) 0.2

Answer: (B) 0.4 · The council's preliminary key

Q112 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

If K_C for the equilibrium reaction $2ABC(g) \rightleftharpoons 2AB(g) + C_2(g)$ is X at T(K), its K_P at the same temperature is :

(A) X.T
(B) X(RT)
(C) $\left(\dfrac{X}{T}\right) R$
(D) $\dfrac{XT}{R}$

Answer: (B) X(RT) · The council's preliminary key

Q113 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

In a 100 L vessel, 3 moles of nitrogen and 3 moles of PCl_5 are taken and heated to 500 K. The equilibrium pressure is 3.28 atm. The percentage degree of dissociation of PCl_5 is (Assume ideal behaviour for all gases).

(A) 33.3
(B) 66.6
(C) 20.6
(D) 40.6

Answer: (B) 66.6 · The council's preliminary key

Q114 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

At T(K), K_c for the reaction $SO_{2(g)} + NO_{2(g)} \rightleftharpoons SO_{3(g)} + NO_{(g)}$ is 16. If initially one mole each of all the four gases are taken in one litre vessel, the equilibrium concentrations of $SO_{3(g)}$ and $SO_{2(g)}$ in $mol\ L^{-1}$ respectively are:

(A) 1.6, 0.4
(B) 0.4, 1.6
(C) 0.8, 3.2
(D) 3.2, 0.8

Answer: (A) 1.6, 0.4 · The council's preliminary key

Q115 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

At 800 K in a closed vessel, the molar concentrations of N_2, O_2 and NO at equilibrium are 3.2×10^{-3} M, 4.2×10^{-3} M and 2.8×10^{-3} M respectively. The approximate values of K_c and $\frac{1}{K_c}$ for the following reaction are respectively

$N_{2(g)} + O_{2(g)} \rightleftharpoons 2NO_{(g)}$

(A) 1.714, 0.583
(B) 0.583, 1.714
(C) 0.8576, 1.166
(D) 1.166, 0.8576

Answer: (B) 0.583, 1.714 · The council's preliminary key

Q116 TS EAMCET 2016 · 15 May · Offline MCQ

Which one of the following is correct ?

(A) The equilibrium constant (K_c) is independent of temperature.
(B) The value of K_c is independent of initial concentrations of reactants and products.
(C) At equilibrium, the rate of the forward reaction is twice the rate of the backward reaction.
(D) The equilibrium constant (K_c) for the reaction $Ni(s) + 4CO(g) \rightleftharpoons Ni(CO)_4(g)$ is, $\frac{[Ni(CO)_4]}{[CO]}$

Answer: (B) The value of K_c is independent of initial concentrations of reactants and products. · Official TGCHE final key

Q117 AP EAMCET 2016 · 29 Apr · Offline MCQ

At 400 K, in a 1.0L vessel N_2O_4 is allowed to attain equilibrium
$N_2O_{4(g)} \rightleftharpoons 2NO_{2(g)}$
At equilibrium the total pressure is 600 mm Hg, when 20% of N_2O_4 is dissociated. The K_p value for the reaction is

(A) 50
(B) 100
(C) 150
(D) 200

Answer: (B) 100 · The council's preliminary key

Q118 AP EAMCET 2014 · 22 May · Offline MCQ

In a reaction $A + B \rightleftharpoons C + D$, 40% of B has reacted at equilibrium, when 1 mol of A was heated with 1 mol of B in a 10 litre closed vessel. The value of K_c is

(A) 0.44
(B) 0.18
(C) 0.22
(D) 0.36

Answer: (A) 0.44 · The council's preliminary key

Q119 AP EAMCET 2011 · 8 May · Offline MCQ

At T(K), the partial pressures of SO_2, O_2 and SO_3 are 0.662, 0.100 and 0.331 atm. respectively for the reaction $2\,SO_2(g) + O_2(g) \rightleftharpoons 2\,SO_3(g)$ at equilibrium. What is the partial pressure in atm. of O_2 when the equilibrium partial pressures of SO_2 and SO_3 are equal at the same temperature ?

(A) 0.4
(B) 0.8
(C) 0.25
(D) 2.5

Answer: (A) 0.4 · The council's preliminary key

Q120 AP EAMCET 2010 · 30 May · Offline MCQ

If the equilibrium constant for the reaction
$H_{2(g)} + I_{2(g)} \rightleftharpoons 2HI_{(g)}$ is K
what is the equilibrium constant of
$HI_{(g)} \rightleftharpoons \frac{1}{2}H_{2(g)} + \frac{1}{2}I_{2(g)}$?

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(A) $\frac{1}{K}$

(B) $\sqrt{K}$

(C) K

(D) $\frac{1}{\sqrt{K}}$

Answer: (D) $\frac{1}{\sqrt{K}}$ · Official APSCHE final key

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