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CHEMISTRY · EAPCET (EAMCET)

Chemical Thermodynamics

Previous Year Questions with answers

220 questions · **145** papers · **2010–2026** · newest paper first

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What is in this PDF: every Chemical Thermodynamics 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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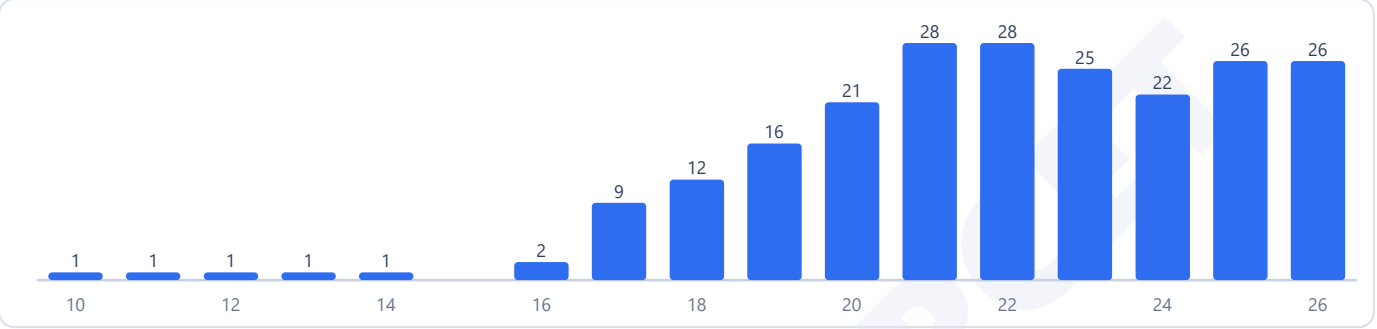
Chapter at a glance

4.1%	220	77 of 77	220 / 0
of Chemistry questions, 2022–2026	questions, 2010–2026	papers asked it, 2022–2026	MCQ / numerical, 2010–2026

Trend. Steady: 1.6 questions per paper in 2024–2026 against 1.7 in 2022–2023.

Questions per year



Counts are the questions we hold: 220 in 145 papers. No question in this chapter was found repeated across papers.

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

First Law & Enthalpy	89
Entropy & Gibbs Energy	72
Thermochemistry	59

How often it comes up

Chemical Thermodynamics ranks at position 8 among all 31 chemistry chapters in the 2022 to 2026 examination span. Across our complete archive from 2010 through 2026, the chapter registered 220 questions across 149 papers, appearing in 145 of those sessions and commanding 3.7 percent of the total chemistry questions with 1.5 questions per paper. In the modern window from 2022 to 2026, it provided 127 questions across 77 sittings, generating 1.6 questions per paper and a 4.1 percent subject share.

The chapter has cemented its standing in recent sessions, appearing in every paper between 2022 and 2026. Across jurisdictions during these five years, AP candidates tackled 96 questions across 48 papers (2.0 questions per paper, 5.0 percent share), whereas TS papers included 31 questions over 29 sittings (1.1 questions per paper, 2.7 percent share).

Looking at the earlier historical block from 2010 through 2021, the chapter contributed 93 questions across 72 sittings (appearing in 68 papers), delivering 1.3 questions per paper and a 3.2 percent subject share. Over the last three testing seasons from 2024 to 2026, papers accumulated 74 questions across 46 sittings, maintaining 1.6 questions per paper and 4.0 percent share. In terms of long-term movement, comparing early testing with the last three years shows the share is up, while comparing the recent five-year window with the last three years shows the share is about the same. Every sitting presents at least one reliable thermodynamics problem.

Most-asked topics

Questions in this branch focus on three interrelated conceptual clusters:

- **First Law & Enthalpy** forms the foundation with 89 questions overall and 56 across the recent window through 2026. Frequent problem types assess state versus path functions, intensive versus extensive parameters, isothermal and adiabatic work, and the conversion between internal energy change and enthalpy change using gaseous stoichiometric differences.

- **Thermochemistry** supplied 59 questions across the archive, with 39 appearing between 2022 and 2026. This area tests Hesss law cycles, standard enthalpies of formation, enthalpies of combustion, bond dissociation energies, and resonance stabilization calculations.
- **Entropy & Gibbs Energy** accounts for 72 questions in total and 32 in the recent period through 2026. Core topics include qualitative sign evaluations for system entropy, calculations of standard Gibbs free energy, criteria for spontaneity, and equilibrium temperature thresholds.

What the questions look like

Calculations in chemical thermodynamics tend to be direct, testing whether you can set up energy conservation equations cleanly. One recurring problem supplies standard formation enthalpies for reactants and products and asks for the reaction enthalpy, or asks you to deduce standard formation enthalpy from combustion data. Another common variant tests the relation connecting enthalpy change to internal energy change, requiring you to calculate the net change in moles of gas produced by a chemical reaction.

In the second law area, problems often present numerical values for enthalpy change and entropy change and ask for the threshold temperature at which the reaction transitions from non-spontaneous to spontaneous. Other questions present four physical or chemical changes and ask you to select the transformation where entropy increases.

How to practise it

Pay rigorous attention to units and sign conventions. Enthalpy changes are conventionally stated in kilojoules per mole, whereas entropy changes are almost always provided in joules per mole Kelvin. Forgetting to divide entropy by one thousand before plugging values into the Gibbs Helmholtz equation is the single most common source of wrong answers.

Practise Hesss law problems by writing balanced thermochemical equations step by step. When using bond enthalpies, remember the rule: sum of bond enthalpies of reactants minus sum of bond enthalpies of products. Conversely, when using standard enthalpies of formation, the calculation is products minus reactants. Rehearse gaseous stoichiometric mole counting carefully so you never miscount liquid or solid phases in net gas mole differences.

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Q1 AP EAPCET 2026 · 18 May · Shift 1 MCQ

At 298 K, the value of $(\Delta H - \Delta U)$ for the combustion of 1 mole C_4H_{10} (g) is x kJ and for the combustion of 1 mole glucose, the value of $(\Delta H - \Delta U)$ is y kJ. The value of $(x - y)$ (in kJ) is

$(R = 8.3\ J\ K^{-1}\ mol^{-1})$

(A) $+8.657$
(B) -8.657
(C) -9.659
(D) $+4.329$

Answer: (B) -8.657 · The council's preliminary key

Q2 AP EAPCET 2026 · 18 May · Shift 1 MCQ

At 298 K for the reaction $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$, $\Delta H = -92.4\ kJ$, $\log K_C$ value is 5.75. What is the entropy change (in $J\ K^{-1}$) for this reaction at the same temperature?

$(R = 8.3\ J\ K^{-1}\ mol^{-1})$

(A) -300
(B) -400
(C) -200
(D) -100

Answer: (C) -200 · The council's preliminary key

Q3 AP EAPCET 2026 · 18 May · Shift 2 MCQ

At constant temperature, one mole of an ideal gas of volume 2L was expanded to 100 L against an external pressure of 1 atm under reversible conditions. What is the change in internal energy?
(1 L atm = 101.3 J; log 5 = 0.7)

(A) Zero
(B) 793.2 J
(C) 3266 J
(D) 326.6 J

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

Q4 AP EAPCET 2026 · 18 May · Shift 2 MCQ

What is the enthalpy change (in $J\ mol^{-1}$) for the conversion of 1 mole of H_2O (l) at 10 °C to 1 mole of H_2O (s) at -10 °C?

(At 0 °C, $H_2O\ (s) + x\ kJ\ mol^{-1} \rightarrow H_2O\ (l)$;

$C_p(H_2O\ (l)) = y\ J\ mol^{-1}K^{-1}$

$C_p(H_2O\ (s)) = z\ J\ mol^{-1}K^{-1}$)

(A) $-(1000x + 10y + 10z)$
(B) $-(x + y + z)$
(C) $-(1000x + y - z)$
(D) $-(1000x - y + z)$

Answer: (A) $-(1000x + 10y + 10z)$ · The council's preliminary key

Q5 AP EAPCET 2026 · 15 May · Shift 1 MCQ

At constant temperature, one mole of an ideal gas of volume 2L expanded to 100 L against an external pressure of 1 atm under reversible conditions. What is the work done (in J)?
(1 L atm = 101.3 J; log 5 = 0.7)

(A) -163.3
(B) -793.2
(C) $+793.2$
(D) $+326.6$

Answer: (B) -793.2 · The council's preliminary key

Q6 AP EAPCET 2026 · 15 May · Shift 1 MCQ

At T(K), in a reaction $\mathrm{A(g)} \rightarrow \mathrm{B(g)} + \mathrm{C(g)}$, x J of heat was absorbed and y J of work is done by the system. What is $\Delta_r H$ (in J) for the reaction?
(R = gas constant)

(A) $(x + y + RT)$
(B) $(x - y + RT)$
(C) $(x + y + 2RT)$
(D) $(x - y + 2RT)$

Answer: (B) $(x - y + RT)$ · The council's preliminary key

Q7 AP EAPCET 2026 · 15 May · Shift 2 MCQ

At 27°C, 1.6 g of O_2 exerting a pressure of 5 atm is allowed to expand isothermally against a constant pressure of 1 atm. What is the work done (in J)?
$(1\ L - atm = 100J, R = 0.082\ L\ atm\ K^{-1}mol^{-1})$

(A) -49.2
(B) -98.4
(C) $+98.4$
(D) $+49.2$

Answer: (B) -98.4 · The council's preliminary key

Q8 AP EAPCET 2026 · 15 May · Shift 2 MCQ

For the reaction, $2Al_2O_3(s) \rightarrow 4Al(s) + 3O_2(g), \Delta H = 3340$ kJ.
What is the enthalpy of formation of $Al_2O_3(s)$ (in kJ)?

(A) $+1670$
(B) -3340
(C) $+3340$
(D) -1670

Answer: (D) -1670 · The council's preliminary key

Q9 AP EAPCET 2026 · 14 May · Shift 1 MCQ

Combustion of methane gives $CO_2(g)$ and $H_2O(l)$. What is enthalpy of combustion ($\Delta_c H^\ominus$ in $kJ\ mol^{-1}$) of $CH_4(g)$ at 298 K?

$(\Delta_f H^\ominus(CH_4(g)) = -x\ kJ\ mol^{-1}; \Delta_f H^\ominus(CO_2(g)) = -y\ kJ\ mol^{-1}; \Delta_f H^\ominus(H_2O(l)) = -z\ kJ\ mol^{-1})$

(A) $-(y + 2z - x)$
(B) $(2z - y + x)$
(C) $(2z + x - y)$
(D) $-(2y + z + x)$

Answer: (A) $-(y + 2z - x)$ · The council's preliminary key

Q10 AP EAPCET 2026 · 14 May · Shift 1 MCQ

Identify the correct statements from the following

I. Bomb calorimeter is used to determine the heat absorbed by water in a chemical reaction at constant volume

II. Heat capacity is an extensive property

III. The units of entropy are J K

The correct answer is

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

Answer: (B) I, II only · The council's preliminary key

Q11 AP EAPCET 2026 · 14 May · Shift 2 MCQ

Identify the set with only extensive properties

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(A) Temperature, Pressure, Number of moles
(B) Heat capacity, Enthalpy, Entropy
(C) Pressure, Specific heat, Molar heat capacity
(D) Density, Mole fraction, viscosity

Answer: (B) Heat capacity, Enthalpy, Entropy · The council's preliminary key

Q12 AP EAPCET 2026 · 14 May · Shift 2 MCQ

Match the following

List – I			List - II
$\Delta_r H^\circ$	$\Delta_r S^\circ$	$\Delta_r G^\circ$	Description about the reaction
A. +	−	+	I. Non spontaneous at low temperature
B. −	−	−	II. Spontaneous at high temperature
C. +	+	+	III. Non spontaneous at all temperatures
D. +	+	−	IV. Spontaneous at low temperature

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

Answer: (B) A-III, B-IV, C-I, D-II · The council's preliminary key

Q13 AP EAPCET 2026 · 13 May · Shift 1 MCQ

At T(K), enthalpy of combustion of $\mathrm{C(s)}$, $\mathrm{H_2(g)}$ and $\mathrm{CH_4(g)}$ are -393.5, -286, -890 $\mathrm{kJ\ mol^{-1}}$ respectively. What is the enthalpy of formation of methane (in $\mathrm{kJ\ mol^{-1}}$)?

(A) 54.6
(B) -75.5
(C) 99.7
(D) 89.6

Answer: (B) -75.5 · The council's preliminary key

Q14 AP EAPCET 2026 · 13 May · Shift 1 MCQ

At 300 K, 1 mole of an ideal gas is allowed to expand isothermally and reversibly from a pressure of 20 atm to 2 atm. The work done (in $\mathrm{kJ\ mol^{-1}}$) in the process is
($\mathrm{R = 8.3\ J\ K^{-1}\ mol^{-1}}$)

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(A) -57.34
(B) +5.734
(C) -5.734
(D) +57.34

Answer: (C) -5.734 · The council's preliminary key

Q15 AP EAPCET 2026 · 13 May · Shift 2 MCQ

At $27^{\circ}\mathrm{C}$, 10 g of argon (at. wt = 40 u) is compressed isothermally and reversibly from 50 L to 5 L. What is q for this process?
(Assume Ar as an ideal gas) (R = 8.3 $JK^{-1}mol^{-1}$)

(A) $+1.433\ kJ$
(B) $-1.433\ kJ$
(C) $-2.866\ kJ$
(D) $+2.866\ kJ$

Answer: (B) $-1.433\ kJ$ · The council's preliminary key

Q16 AP EAPCET 2026 · 13 May · Shift 2 MCQ

At 298 K for the reaction,
$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$, enthalpy and entropy changes are $-92.4\ kJ$ and $-200\ J\ K^{-1}$ respectively. The value of $\log K_c$ for the reaction is
(R = 8.3 $J\ K^{-1}\ mol^{-1}$)

(A) 5.75
(B) 6.75
(C) 7.65
(D) 5.67

Answer: (A) 5.75 · The council's preliminary key

Q17 AP EAPCET 2026 · 12 May · Shift 1 MCQ

The $\Delta_f H^{\ominus}$ of $\mathrm{AO(g)}$, $\mathrm{AO_2(g)}$, $\mathrm{B_2O(g)}$ and $\mathrm{B_2O_4(g)}$ is respectively $-110, -393, +81$ and $+9.7$ kJ mol $^{-1}$. What is $\Delta_r H^{\ominus}$ (in kJ mol^{-1}) of the following reaction at 298 K?

$$\mathrm{B_2O_4(g) + 3\ AO(g) \rightarrow B_2O(g) + 3\ AO_2(g)}$$

(A) -777.7
(B) -1179
(C) $+777.7$
(D) $+1179$

Answer: (A) -777.7 · The council's preliminary key

Q18 AP EAPCET 2026 · 12 May · Shift 1 MCQ

What is $\Delta_r G^{\ominus}$ for the following reaction at 298 K?

$2\,\mathrm{X(g)} + \mathrm{Y(g)} \rightarrow 2\,\mathrm{Z(g)}$

($\Delta U^{\ominus} = -10.5$ kJ; $\Delta S^{\ominus} = -44\ \mathrm{JK^{-1}}$; $R = 8.3\ \mathrm{J\,K^{-1}mol^{-1}}$)

(A) 12973 J
(B) 13112 J
(C) 139.0 J
(D) 0.1390 J

Answer: (C) 139.0 J · The council's preliminary key

Q19 AP EAPCET 2026 · 12 May · Shift 2 MCQ

Consider the following reaction

$\mathrm{A_2B_4(g)} \longrightarrow 2\mathrm{AB_2(g)}$

At 300 K, $\Delta_r H$ for this reaction is $-x$ kJ mol^{-1}. What is its $\Delta_r U$ (in kJ mol^{-1}) at the same temperature? (R = 8.3 J mol^{-1} K^{-1})

(A) $-(x + 2490)$
(B) $(x + 2490)$
(C) $-(x + 2.49)$
(D) $(x + 2.49)$

Answer: (C) $-(x + 2.49)$ · The council's preliminary key

Q20 AP EAPCET 2026 · 12 May · Shift 2 MCQ

At 17°C, the enthalpy change and entropy change of the reaction given below are respectively $-12.55\ kJ\ mol^{-1}$ and $5.0\ JK^{-1}$

$$Zn(s) + 2HCl(aq) \rightarrow ZnCl_2(aq) + H_2(g)$$

What is ΔG (in $kJ\ mol^{-1}$) for this reaction?

(A) -14
(B) $+14$
(C) -28
(D) $+56$

Answer: (A) -14 · The council's preliminary key

Q21 TS EAPCET 2026 · 11 May · Shift 1 MCQ

Identify the sets which contain either only extensive properties or only intensive properties

I. Density, specific heat, surface tension

II. Mole fraction, Internal energy, viscosity

III. Molality, pressure, Entropy

IV. Number of moles, Enthalpy, Heat capacity

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

Answer: (A) I, IV only · The council's preliminary key

Q22 TS EAPCET 2026 · 11 May · Shift 2 MCQ

What is the enthalpy change (in $\mathrm{kJ\,mol^{-1}}$) for the following reaction?

$\mathrm{CH_4(g) \rightarrow C(g) + 4H(g)}$

Given: ($\Delta_f H^{\ominus}(\mathrm{CH_4}) = -74.8\ \mathrm{kJ\,mol^{-1}}$; $\mathrm{H_2(g) \rightarrow 2H(g)}$; $\Delta_a H^{\ominus} = 435\ \mathrm{kJ\,mol^{-1}}$; $\mathrm{C(s) \rightarrow C(g)}$; $\Delta_a H^{\ominus} = 716.7\ \mathrm{kJ\,mol^{-1}}$)

(A) 396.67
(B) 1586.7
(C) 1661.5
(D) 415.37

Answer: (C) 1661.5 · The council's preliminary key

Q23 TS EAPCET 2026 · 10 May · Shift 1 MCQ

At 300K, enthalpies of formation of $\mathrm{C_6H_5COOH}$ (s), $\mathrm{CO_2}$ (g) and $\mathrm{H_2O}$ (l) are -409, -393 and -286 $\mathrm{kJ\,mol^{-1}}$ respectively. Enthalpy of combustion of benzoic acid (in $\mathrm{kJ\,mol^{-1}}$) is

(A) -1600
(B) $+1600$
(C) -3200
(D) $+4800$

Answer: (C) -3200 · The council's preliminary key

Q24 TS EAPCET 2026 · 10 May · Shift 2 MCQ

$\Delta\mathrm{H}$ and $\Delta\mathrm{S}$ for the reaction, $\mathrm{2A + B \rightarrow C}$ at 298 K are 400 kJ $\mathrm{mol^{-1}}$ and 2 kJ $\mathrm{K^{-1}mol^{-1}}$ respectively. At or above T(K), the reaction becomes spontaneous. What is T(K) ?
(Assume $\Delta\mathrm{H}$ and $\Delta\mathrm{S}$ are constant over the temperature range)

(A) 100
(B) 200
(C) 150
(D) 125

Answer: (B) 200 · The council's preliminary key

Q25 TS EAPCET 2026 · 9 May · Shift 1 MCQ

In which of the following reactions ΔS (entropy change) is positive?

(s = solid, l = liquid, g = gas)

(A) $\mathrm{H_2O}(l) \rightarrow \mathrm{H_2O(s)}$
(B) $3\mathrm{O_2(g)} \rightarrow 2\mathrm{O_3(g)}$
(C) $\mathrm{H_2O}\,(l) \rightarrow \mathrm{H_2O}\,(\mathrm{g})$
(D) $\mathrm{N_2(g)} + 3\mathrm{H_2(g)} \rightarrow 2\mathrm{NH_3(g)}$

Answer: (C) $\mathrm{H_2O}\,(l) \rightarrow \mathrm{H_2O}\,(\mathrm{g})$ · The council's preliminary key

Q26 TS EAPCET 2026 · 9 May · Shift 2 MCQ

The $\Delta_f H^{\ominus}$ of $\mathrm{BaCO_3}$ (s), BaO (s) and $\mathrm{CO_2}$ (g) is respectively -1216.3, -553.5 and -393.5 kJ mol^{-1}. What is the value of x (in kJ mol^{-1}) in the following reaction?

$$\mathrm{BaCO_3(s)} \xrightarrow{\Delta} \mathrm{BaO(s)} + \mathrm{CO_2(g)} - x$$

(A) -269.3
(B) 269.3
(C) 2163
(D) -2163

Answer: (B) 269.3 · The council's preliminary key

Q27 AP EAPCET 2025 · 27 May · Shift 1 MCQ

5 moles of a gas is allowed to pass through a series of changes as shown in the graph, in a cyclic process. The processes $C \rightarrow A, B \rightarrow C$ and $A \rightarrow B$ respectively are

(Volume = ఘనపరిమాణం; Temperature = ఉష్ణోగ్రత)

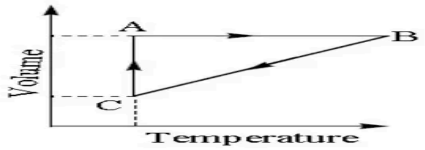
(see the figure above)

Correct Marks : 1 Wrong Marks : 0

5 moles of a gas is allowed to pass through a series of changes as shown in the graph, in a cyclic process. The processes $C \rightarrow A$, $B \rightarrow C$ and $A \rightarrow B$ respectively are

ఒక వలయ ప్రక్రియలో 5 మోల్‌ల ఒక వాయువును గ్రాఫ్‌లో చూపిన విధంగా వరుస మార్పులకు లోను చేసారు. $C \rightarrow A$, $B \rightarrow C$ మరియు $A \rightarrow B$ ప్రక్రియలు వరుసగా

(Volume = ఘనపరిమాణం; Temperature = ఉష్ణోగ్రత)



Options :

1. Isothermal, Isochoric, Isobaric
   సమోష్ణ, ఐసోకోరిక్, ఐసోబారిక్
2. Isochoric, Isobaric, Isothermal
   ఐసోకోరిక్, ఐసోబారిక్, సమోష్ణ
3. Isobaric, Isochoric, Isothermal
   ఐసోబారిక్, ఐసోకోరిక్, సమోష్ణ
4. Isothermal, Isobaric, Isochoric
   సమోష్ణ, ఐసోబారిక్, ఐసోకోరిక్

(A) Isothermal, Isochoric, Isobaric
(B) Isochoric, Isobaric, Isothermal
(C) Isobaric, Isochoric, Isothermal
(D) Isothermal, Isobaric, Isochoric

Answer: (D) Isothermal, Isobaric, Isochoric · The council's preliminary key

Q28 AP EAPCET 2025 · 27 May · Shift 1 MCQ

1 mole of an ideal gas is allowed to expand isothermally and reversibly from 1L to 5L at 300 K. The change in enthalpy (in kJ) is ($R = 8.3\ J\ K^{-1}\ mol^{-1}$)

(A) 1.74
(B) 2.48
(C) 0.0
(D) 4.22

Answer: (C) 0.0 · The council's preliminary key

Q29 AP EAPCET 2025 · 26 May · Shift 1 MCQ

Consider the following.

Statement-I : Both internal energy (U) and work (w) are state functions.

Statement-II : During the free expansion of an ideal gas into vacuum, the work done is zero.

The correct answer is

(A) Both statement-I and statement-II are correct
(B) Both statement-I and statement-II are not correct
(C) Statement-I is correct, but statement-II is not correct
(D) Statement-I is not correct, but statement-II is correct

Answer: (D) Statement-I is not correct, but statement-II is correct · The council's preliminary key

Q30 AP EAPCET 2025 · 26 May · Shift 1 MCQ

The signs of $\Delta_r H^\circ$ and $\Delta_r S^\circ$ for a reaction to be spontaneous at all temperatures respectively are

(A) positive, positive
(B) positive, negative
(C) negative, negative
(D) negative, positive

Answer: (D) negative, positive · The council's preliminary key

Q31 AP EAPCET 2025 · 26 May · Shift 2 MCQ

The number of extensive and intensive properties in the list given below is respectively

density, enthalpy, mass, temperature, volume, pressure

(A) 4, 2
(B) 1, 5
(C) 2, 4
(D) 3, 3

Answer: (D) 3, 3 · The council's preliminary key

Q32 AP EAPCET 2025 · 26 May · Shift 2 MCQ

One mole of ethanol (l) was completely burnt in oxygen to form $\mathrm{CO_2(g)}$ and $\mathrm{H_2O}(l)$. What is the $\Delta_r \mathrm{H}^\ominus$ (in $\mathrm{kJ\ mol^{-1}}$) for this reaction ?
(The standard enthalpy of formation ($\Delta_f \mathrm{H}^\ominus$) of $\mathrm{C_2H_5OH}(l)$, $\mathrm{CO_2(g)}$ and $\mathrm{H_2O}(l)$ is respectively -277 , -393 and $-286\ \mathrm{kJ\ mol^{-1}}$.)

(A) $+1921$
(B) -1921
(C) $+1367$
(D) -1367

Answer: (D) -1367 · The council's preliminary key

Q33 AP EAPCET 2025 · 24 May · Shift 1 MCQ

If $\Delta_r H^\ominus$ and $\Delta_r S^\ominus$ are standard enthalpy change and standard entropy change respectively for a reaction, the incorrect option is

(A) $\Delta_r H^\ominus$ = negative; $\Delta_r S^\ominus$ = positive; spontaneous at all temperatures
(B) $\Delta_r H^\ominus$ = negative; $\Delta_r S^\ominus$ = negative; non-spontaneous at low temperatures
(C) $\Delta_r H^\ominus$ = positive; $\Delta_r S^\ominus$ = positive; non-spontaneous at low temperatures
(D) $\Delta_r H^\ominus$ = negative; $\Delta_r S^\ominus$ = negative; spontaneous at low temperatures

Answer: (B) $\Delta_r H^\ominus$ = negative; $\Delta_r S^\ominus$ = negative; non-spontaneous at low temperatures · The council's preliminary key

Q34 AP EAPCET 2025 · 24 May · Shift 1 MCQ

The C_p of $H_2O(l)$ is $75.3\ J\ mol^{-1}\ K^{-1}$. What is the energy (in J) required to raise 180 g of liquid water from $10^\circ C$ to $15^\circ C$? (H_2O = 18 u)

(A) 3.765
(B) 3765
(C) 753
(D) 376.5

Answer: (B) 3765 · The council's preliminary key

Q35 AP EAPCET 2025 · 23 May · Shift 1 MCQ

For which reaction $\Delta H \neq \Delta U$?

(A) $H_2(g) + I_2(g) \longrightarrow 2HI(g)$
(B) $2NO(g) \longrightarrow N_2(g) + O_2(g)$
(C) $N_2(g) + 3H_2(g) \longrightarrow 2NH_3(g)$
(D) $C(s) + O_2(g) \longrightarrow CO_2(g)$

Answer: (C) $N_2(g) + 3H_2(g) \longrightarrow 2NH_3(g)$ · The council's preliminary key

Q36 AP EAPCET 2025 · 23 May · Shift 1 MCQ

At 298 K, $\Delta_r U^\ominus$ and $\Delta_r S^\ominus$ for the following reaction are -10.5 kJ and $+44.1\ JK^{-1}$;
$2X(g) + Y(g) \longrightarrow 2Z(g)$

What is $\Delta_r G^\ominus$ (in kJ) for this reaction ? ($R = 8.314\ J\ K^{-1}\ mol^{-1}$)

(A) $+0.164$
(B) -26.119
(C) -2.6119
(D) -0.082

Answer: (B) -26.119 · The council's preliminary key

Q37 AP EAPCET 2025 · 23 May · Shift 2 MCQ

Identify the incorrect statements from the following.

I. For adiabatic process, $\Delta U = w_{ad}$

II) Enthalpy is an intensive property

III) For the process, $H_2O\ (l) \rightarrow H_2O$ (s), the entropy increases

The correct answer is (only)

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

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

Q38 AP EAPCET 2025 · 23 May · Shift 2 MCQ

Enthalpy of formation of $CO_2(g)$, $H_2O(l)$ and $C_6H_{12}O_6(s)$ are -393, -286 and $-1170\ kJ\ mol^{-1}$ respectively. The quantity of heat liberated when 18g of $C_6H_{12}O_6(s)$ is burnt completely in oxygen is

(A) 520 kJ
(B) 145 kJ
(C) 290 kJ
(D) 420 kJ

Answer: (C) 290 kJ · The council's preliminary key

Q39 AP EAPCET 2025 · 22 May · Shift 1 MCQ

Identify the correct statements from the following

I) Work is a path function.

II) Enthalpy is an extensive property

III) Lattice enthalpy of ionic compounds can be obtained from Born-Haber cycle.

(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

Q40 AP EAPCET 2025 · 22 May · Shift 1 MCQ

For which of the following processes entropy change (ΔS) is negative ?

I) Sublimation of dry ice

II) Freezing of water

III) Crystallisation of the dissolved substance

IV) Burning of rocket fuel

(A) I & II only
(B) II & III only
(C) III & IV only
(D) I & IV only

Answer: (B) II & III only · The council's preliminary key

Q41 AP EAPCET 2025 · 22 May · Shift 2 MCQ

Consider the following reaction

$$\mathrm{A(g) + 3B(g) \longrightarrow 2C(g);\ \Delta H^{\ominus} = -24\ kJ.}$$

At $25\ ^{\circ}\mathrm{C}$ if $\Delta G^{\ominus}$ of the reaction is -9 kJ, the standard entropy change (in $\mathrm{JK^{-1}}$) of the same reaction at same temperature is

(A) -5.33
(B) -50.33
(C) -500.33
(D) -0.533

Answer: (B) -50.33 · The council's preliminary key

Q42 AP EAPCET 2025 · 22 May · Shift 2 MCQ

One mole of $\mathrm{C_2H_5OH}(l)$ was completely burnt in oxygen to form $\mathrm{CO_2}(g)$ and $\mathrm{H_2O}(l)$. The standard enthalpy of formation ($\Delta_f H^{\ominus}$) of $\mathrm{C_2H_5OH}(l)$, $\mathrm{CO_2}(g)$ and $\mathrm{H_2O}(l)$ is x, y, z kJ $\mathrm{mol^{-1}}$ respectively. What is $\Delta_r H^{\ominus}$ (in kJ $\mathrm{mol^{-1}}$) for this reaction ?

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(A) $(2y + 3z + x)$
(B) $(2y - 3z + x)$
(C) $(x - 2y - 3z)$
(D) $(2y + 3z - x)$

Answer: (D) $(2y + 3z - x)$ · The council's preliminary key

Q43 AP EAPCET 2025 · 21 May · Shift 1 MCQ

At 273 K the maximum work done when pressure on 10 g of hydrogen is reduced from 10 atm to 1 atm under isothermal, reversible conditions is (Assume the gas behaves ideally) $(\mathrm{R} = 8.3\ \mathrm{JK^{-1}\ mol^{-1}})$

(A) -52.18 kJ
(B) $+26.09$ kJ
(C) -26.09 kJ
(D) $+52.18$ kJ

Answer: (C) -26.09 kJ · The council's preliminary key

Q44 AP EAPCET 2025 · 21 May · Shift 1 MCQ

At 298 K, $\Delta_r G^{\ominus}$ for the following reaction is 165.469 kJ $\mathrm{mol^{-1}}$.

What is the equilibrium constant for this reaction ? $(\mathrm{R} = 8.3\ \mathrm{J\ mol^{-1}\ K^{-1}})$

$$\frac{3}{2}\mathrm{O_2(g)} \longrightarrow \mathrm{O_3(g)}$$

(A) 10^{29}
(B) 10^{-29}
(C) 5×10^{-27}
(D) $5 \times 10^{+27}$

Answer: (B) 10^{-29} · The council's preliminary key

Q45 AP EAPCET 2025 · 21 May · Shift 2 MCQ

Consider the following

Statement-I : During isothermal expansion of an ideal gas its enthalpy decreases.

Statement-II : When 2.0 L of an ideal gas expands isothermally into vaccum, $\Delta U = 0$.

The correct answer is

(A) Both statement-I and statement-II are correct
(B) Both statement-I and statement-II are not correct
(C) Statement-I is correct, but statement-II is not correct
(D) Statement-I is not correct, but statement-II is correct

Answer: (D) Statement-I is not correct, but statement-II is correct · The council's preliminary key

Q46 AP EAPCET 2025 · 21 May · Shift 2 MCQ

The energy required to increase the temperature of 180 g of liquid water from $10\ ^{\circ}\mathrm{C}$ to $15\ ^{\circ}\mathrm{C}$ is 3765 J. What is C_{p} of water in $\mathrm{J\ mol^{-1}\ K^{-1}}$? ($\mathrm{H_2O}$ = 18u)

(A) 75.3
(B) 376.5
(C) 753
(D) 37.65

Answer: (A) 75.3 · The council's preliminary key

Q47 TS EAPCET 2025 · 4 May · Shift 1 MCQ

The entropy and enthalpy changes for the reaction $\mathrm{CO(g) + H_2O(g) \rightleftharpoons CO_2(g) + H_2(g)}$ at 300 K and 1 atm are respectively $-42.4\ \mathrm{J\ K^{-1}}$ and -41.2 kJ. The temperature at which the reaction will go in the reverse direction is

(A) 761.8 K
(B) 671.8 K
(C) 961.8 K
(D) 971.8 K

Answer: (D) 971.8 K · The council's preliminary key

Q48 TS EAPCET 2025 · 4 May · Shift 2 MCQ

The $\mathrm{C_p}$ of an ideal gas is $10.314\ \mathrm{J\ mol^{-1}\ K^{-1}}$. One mole of this gas is expanded against a constant pressure of p atm. The change in temperature during expansion is 1.0 K. The values of q (in J) and $\Delta \mathrm{H}$ (in $\mathrm{J\ mol^{-1}}$) are respectively

(A) 10.314, 10.314
(B) 2.000, 10.314
(C) 10.314, 2.000
(D) 2.000, 2.000

Answer: (A) 10.314, 10.314 · The council's preliminary key

Q49 TS EAPCET 2025 · 3 May · Shift 1 MCQ

At 298K, if the standard Gibbs energy change $\Delta_r G^{\ominus}$ of a reaction is $-$ 115 kJ, the value of $\log_{10} K_p$ will be

($R = 8.314\ \mathrm{J\ K^{-1} mol^{-1}}$)

(A) +20.15
(B) −20.15
(C) −10.30
(D) +10.30

Answer: (A) +20.15 · The council's preliminary key

Q50 TS EAPCET 2025 · 3 May · Shift 2 MCQ

Which of the following processes are reversible?

I. Vaporization of a liquid at its boiling point.

II. Expansion of gas into vacuum.

III. Transformation of a solid substance into liquid at its melting point.

IV. Neutralization of an acid by a base.

(A) I & III
(B) II & III
(C) II & IV
(D) I & IV

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

Q51 TS EAPCET 2025 · 2 May · Shift 1 MCQ

At 298 K, the enthalpy change (in kJ) for the reaction given below is

$$\mathrm{CH_4}(g) + \mathrm{O_2}(g) \rightarrow \mathrm{C}(s) + 2\mathrm{H_2O}(l)$$

(Given): $\mathrm{H_2}(g) + \frac{1}{2}\mathrm{O_2}(g) \rightarrow \mathrm{H_2O}(l)$; $\Delta H^{\ominus} = -286$ kJ

$\mathrm{C}(s) + \mathrm{O_2}(g) \rightarrow \mathrm{CO_2}(g)$; $\Delta H^{\ominus} = -394$ kJ

$\mathrm{CH_4}(g) + 2\mathrm{O_2}(g) \rightarrow \mathrm{CO_2}(g) + 2\mathrm{H_2O}(l)$; $\Delta H^{\ominus} = -890$ kJ

(A) +496
(B) -496
(C) -1284
(D) +680

Answer: (B) -496 · The council's preliminary key

Q52 TS EAPCET 2025 · 2 May · Shift 2 MCQ

One mole of an ideal gas at 300 K and 20 atm expands to 2 atm under isothermal and reversible conditions. The work done by the gas is $-x\ \mathrm{kJ\,mol^{-1}}$. The value of x is

(R=8.3 $\mathrm{J\,K^{-1}\,mol^{-1}}$)

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(A) 5.73
(B) 7.37
(C) 3.75
(D) 4.57

Answer: (A) 5.73 · The council's preliminary key

Q53 AP EAPCET 2024 · 23 May · Shift 1 MCQ

Observe the following reactions

I. $CaCO_3(s) \rightarrow CaO(s) + CO_2(g)$

II. $Cl_2(g) \rightarrow 2Cl(g)$

III. $H_2O(l) \rightarrow H_2O(s)$

Identify the reactions in which entropy increases

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

Answer: (B) I, II Only · The council's preliminary key

Q54 AP EAPCET 2024 · 22 May · Shift 1 MCQ

What is the enthalpy change (in J) for converting 9 g of H_2O (l) at $+10^{\circ}C$ to H_2O (l) at $+20^{\circ}C$?

(C_P (H_2O (l)) $= 75\ J\ mol^{-1}\ K^{-1}$) (density of H_2O (l) $= 1\ g\ mL^{-1}$)

(A) 750
(B) 75
(C) 37.5
(D) 375

Answer: (D) 375 · The council's preliminary key

Q55 AP EAPCET 2024 · 22 May · Shift 1 MCQ

A, B, C and D are some compounds. The enthalpy of formation of $A(g)$, $B(g)$, $C(g)$ and $D(g)$ is 9.7, -110, 81 and -393 kJ mol^{-1} respectively. What is $\Delta_r H$ (in kJ mol^{-1}) for the given reaction?

$A(g) + 3B(g) \rightarrow C(g) + 3D(g)$

(A) -777.7

(B) $+777.7$

(C) -1418.3

(D) $+1418.3$

Answer: (A) -777.7 · The council's preliminary key

Q56 AP EAPCET 2024 · 22 May · Shift 2 MCQ

Observe the following reaction

$$\mathrm{ABO_3\ (s)} \xrightarrow{1000\ K} \mathrm{AO\ (s) + BO_2\ (g)}$$

$\Delta_r H$ for this reaction is x kJ mol^{-1}. What is its $\Delta_r U$ (in kJ mol^{-1}) at the same temperature? ($R = 8.3$ J mol^{-1} K^{-1})

(A) $x - 8300$

(B) $x + 8.3$

(C) $x + 8300$

(D) $x - 8.3$

Answer: (D) $x - 8.3$ · The council's preliminary key

Q57 AP EAPCET 2024 · 22 May · Shift 2 MCQ

At 300 K, $\Delta_r G^{\ominus}$ for the reaction $\mathrm{A_2(g) \rightleftharpoons B_2(g)}$ is -11.5 kJ mol^{-1}. The equilibrium constant at 300 K is approximately

(R = 8.314 J mol^{-1} K^{-1})

(A) 10

(B) 100

(C) 1000

(D) 25

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

Q58 AP EAPCET 2024 · 21 May · Shift 1 MCQ

Identify the correct statements from the following

I. $\Delta_r G$ is zero for $\mathrm{A \rightleftharpoons B}$ reaction

II. The entropy of pure crystalline solids approaches zero as the temperature approaches absolute zero

III. ΔU of a reaction can be determined using bomb calorimeter

(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

Q59 AP EAPCET 2024 · 21 May · Shift 1 MCQ

Observe the following reactions

$AB(g) + 25\ H_2O(l) \rightarrow AB_{(25H_2O)};\ \Delta H = x\ kJ\ mol^{-1}$

$AB(g) + 50\ H_2O(l) \rightarrow AB_{(50H_2O)};\ \Delta H = y\ kJ\ mol^{-1}$

The enthalpy of dilution (ΔH_{dil})in $kJ\ mol^{-1}$ is

(A) $(y - x)$
(B) $(y + x)$
(C) $\frac{y}{x}$
(D) $\frac{x}{y}$

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

Q60 AP EAPCET 2024 · 21 May · Shift 2 MCQ

Identify the correct equation relating ΔH, ΔU and ΔT for 1 mole of an ideal gas from the following (R = gas constant)

(A) $(\Delta H)^2 = \Delta U + R\Delta T$
(B) $\Delta H = (\Delta U)^2 + R\Delta T$
(C) $\Delta U = \Delta H - R\Delta T$
(D) $\Delta U = \Delta H + R\Delta T$

Answer: (C) $\Delta U = \Delta H - R\Delta T$ · The council's preliminary key

Q61 AP EAPCET 2024 · 21 May · Shift 2 MCQ

The number of extensive properties in the following list is

enthalpy, density, volume, internal energy, temperature.

(A) 4
(B) 2
(C) 3
(D) 5

Answer: (C) 3 · The council's preliminary key

Q62 AP EAPCET 2024 · 20 May · Shift 1 MCQ

Observe the following reaction

$$2A_2(g) + B_2(g) \xrightarrow{T(K)} 2A_2B(g) + 600\ kJ$$

The standard enthalpy of formation ($\Delta_f H^{\ominus}$) of A_2B (g) is

(A) $600\ kJ\ mol^{-1}$
(B) $300\ kJ\ mol^{-1}$
(C) $-300\ kJ\ mol^{-1}$
(D) $-600\ kJ\ mol^{-1}$

Answer: (C) $-300\ kJ\ mol^{-1}$ · The council's preliminary key

Q63 AP EAPCET 2024 · 20 May · Shift 1 MCQ

Identify the molecule for which the enthalpy of atomization ($\Delta_a H^{\ominus}$) and bond dissociation enthalpy ($\Delta_{bond} H^{\ominus}$) are not equal

(A) H_2
(B) Cl_2
(C) F_2
(D) CH_4

Answer: (D) CH_4 · The council's preliminary key

Q64 AP EAPCET 2024 · 20 May · Shift 2 MCQ

The volume of an ideal gas contracts from 10.0 L to 2.0 L under an applied pressure of 2.0 atm. During contraction the system also evolved 900 J of heat. The change in internal energy (in J) involved in the system is (1 L atm = 101.3 J)

(A) 720.8
(B) 360.4
(C) 1620.8
(D) 810.4

Answer: (A) 720.8 · The council's preliminary key

Q65 AP EAPCET 2024 · 20 May · Shift 2 MCQ

The molar heats of fusion and vapourisation of benzene are 10.9 and 31.0 kJ mol^{-1} respectively. The changes in entropy for the solid $\rightarrow$ liquid and liquid $\rightarrow$ vapour transitions for benzene are x and y, $J\,K^{-1}\,mol^{-1}$, respectively. The value of (y-x) (in $J\,K^{-1}\,mol^{-1}$) is

(At 1 atm, benzene melts at 5.5 °C and boils at 80 °C)

(A) 87.8
(B) 48.7
(C) 39.1
(D) 28.7

Answer: (B) 48.7 · The council's preliminary key

Q66 AP EAPCET 2024 · 19 May · Shift 2 MCQ

Given below are two statements

Statement - I: For isothermal irreversible change of an ideal gas, $q = -w = P_{ext}(V_{final} - V_{initial})$

Statement - II: For adiabatic change, $\Delta U = w_{adiabatic}$

The correct answer is

(A) Both Statement-I and statement-II are correct
(B) Both Statement-I and statement-II are not correct
(C) Statement-I is correct but statement-II is not correct
(D) Statement-I is not correct but statement-II is correct

Answer: (A) Both Statement-I and statement-II are correct · The council's preliminary key

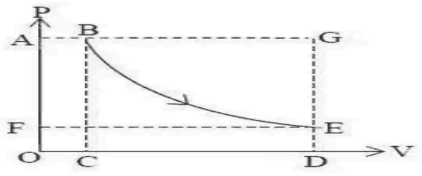
Q67 AP EAPCET 2024 · 19 May · Shift 2 MCQ

A thermodynamic process $(B \rightarrow E)$ was completed as shown below. The work done is equal to area under the limits

(see the figure above)

A thermodynamic process (B → E) was completed as shown below. The work done is equal to area under the limits

ఒక ఉష్ణగతిక ప్రక్రియ (B → E) క్రింది విధంగా పూర్తి అయింది. జరిగిన పని ఏ అవధుల వైశాల్యానికి సమానము?



Options :

1. A → B → E → F

2. A → B → E → D → O

3. B → C → D → E

4. B → G → E

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

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

Q68 AP EAPCET 2024 · 18 May · Shift 1 MCQ

At 300 K, for the reaction $\mathrm{A} \rightarrow \mathrm{P}$, the ΔS_{sys} is 5 $\mathrm{JK}^{-1}\,\mathrm{mol}^{-1}$. What is the heat absorbed (in $\mathrm{kJ\,mol}^{-1}$) by the system?

(A) 1.5
(B) 15
(C) 1500
(D) 0.6

Answer: (A) 1.5 · The council's preliminary key

Q69 AP EAPCET 2024 · 18 May · Shift 1 MCQ

Identify the incorrect statements from the following

I. $\Delta S_{\text{system}} = (\Delta S_{\text{total}} + \Delta S_{\text{surr}})$

II. $\mathrm{A}(l) \rightarrow \mathrm{A}(s)$; for this process entropy change decreases

III. Entropy units are $\mathrm{J\ K\ mol}^{-1}$

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

Answer: (A) I, III only · The council's preliminary key

Q70 TS EAPCET 2024 · 11 May · Shift 1 MCQ

At 300 K, 3.0 moles of an ideal gas at 3.0 atm pressure is compressed isothermally to one half of its volume by an external pressure of 6.0 atm. The work done (in kJ) is (Given, R=0.082 L atm $\mathrm{K}^{-1}\mathrm{mol}^{-1}$) (1 L atm = 101.3 J)

(A) 7.476
(B) 11.214
(C) 3.738
(D) 14.952

Answer: (A) 7.476 · The council's preliminary key

Q71 TS EAPCET 2024 · 10 May · Shift 1 MCQ

The standard enthalpy of combustion of C (graphite), H_2 (g) and $CH_3OH(l)$ respectively are -393, -286 and -726 kJ mol^{-1}. What is the standard enthalpy of formation of methanol?

(A) -726 kJ mol^{-1}
(B) -239 kJ mol^{-1}
(C) -96 kJ mol^{-1}
(D) $+96$ kJ mol^{-1}

Answer: (B) -239 kJ mol^{-1} · The council's preliminary key

Q72 TS EAPCET 2024 · 10 May · Shift 2 MCQ

The $\Delta_f H^\ominus$ of $AO(s)$, $BO_2(g)$ and $ABO_3(s)$ is -635, x and -1210 kJ mol^{-1} respectively. $ABO_3(s) \rightarrow AO(s) + BO_2(g)$; $\Delta_r H^\ominus = 175\ kJ\ mol^{-1}$. What is the value of x (in kJ mol^{-1})?

(A) -750
(B) +400
(C) -400
(D) +750

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

Q73 TS EAPCET 2024 · 9 May · Shift 1 MCQ

The standard enthalpy of formation ($\Delta_f H^\ominus$) of ammonia is -46.2 kJ mol^{-1}. What is the $\Delta_r H^\ominus$ of the following reaction?

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

(A) -46.2 kJ
(B) $+46.2$ kJ
(C) -92.4 kJ
(D) -184.8 kJ

Answer: (C) -92.4 kJ · The council's preliminary key

Q74 TS EAPCET 2024 · 9 May · Shift 2 MCQ

At 61 K, one mole of an ideal gas of 1.0 L volume expands isothermally and reversibly to a final volume of 10.0 L. What is the work done in the expansion?

(A) -11.52 L atm
(B) -23.04 L atm
(C) -46.08 L atm
(D) -5.76 L atm

Answer: (A) -11.52 L atm · The council's preliminary key

Q75 AP EAPCET 2023 · 19 May · Shift 1 MCQ

The standard enthalpy of atomization of ethane according to the equation $C_2H_6(g) \rightarrow 2C(g) + 6H(g)$ is 622 kJ mol^{-1}. If standard mean C-H bond dissociation enthalpy is 90 kJ mol^{-1}, the standard mean dissociation enthalpy of C-C bond (in kJ mol^{-1}) is

(A) 540
(B) 90
(C) 85
(D) 82

Answer: (D) 82 · The council's preliminary key

Q76 AP EAPCET 2023 · 19 May · Shift 1 MCQ

If standard molar enthalpy change and standard molar internal energy change measured in bomb calorimeter are equal, which one of the following statements is correct?

(A) $\Delta n > 0$, with increase in pressure
(B) $\Delta n > 0$, with decrease in pressure
(C) $\Delta n < 0$, with increase in pressure
(D) $\Delta n = 0$, at constant pressure

Answer: (D) $\Delta n = 0$, at constant pressure · The council's preliminary key

Q77 AP EAPCET 2023 · 18 May · Shift 1 MCQ

Identify the pair in which both are not extensive properties

(A) Internal energy, enthalpy
(B) Mass, volume
(C) Density, pressure
(D) Heat capacity, Gibbs energy

Answer: (C) Density, pressure · The council's preliminary key

Q78 AP EAPCET 2023 · 18 May · Shift 1 MCQ

The standard enthalpy of formation of $CO_2(g)$, $CaO(s)$ and $CaCO_3(s)$ are -393, -634, -1210 kJ mol^{-1} respectively. If all the substances are in standard state, the standard enthalpy of decomposition of calcium carbonate to $CaO(s)$ and $CO_2(g)$ (in kJ mol^{-1}) is

(A) 969
(B) 183
(C) -969
(D) -183

Answer: (B) 183 · The council's preliminary key

Q79 AP EAPCET 2023 · 18 May · Shift 2 MCQ

The number of extensive and intensive properties in the following list is respectively

Mass, temperature, pressure, enthalpy, heat capacity, internal energy, density

(A) 2, 5
(B) 3, 4
(C) 4, 3
(D) 5, 2

Answer: (C) 4, 3 · The council's preliminary key

Q80 AP EAPCET 2023 · 18 May · Shift 2 MCQ

If one litre of an ideal gas at a pressure of 20 atm expands isothermally and reversibly to a final volume of 'X' L by absorbing 92.12 L.atm heat, 'X' (in L) is

(A) 200
(B) 20
(C) 10
(D) 100

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

Q81 AP EAPCET 2023 · 17 May · Shift 1 MCQ

If the enthalpy and entropy change for a reaction at 298 K are -145 kJ mol^{-1} and -650 J K^{-1} mol^{-1} respectively, which one of the following statements is correct?

(A) $\Delta G = -50\ \mathrm{kJ\ mol^{-1}}$, the reaction is spontaneous
(B) $\Delta G = -48.7\ \mathrm{kJ\ mol^{-1}}$, the reaction is non-spontaneous
(C) $\Delta G = +50\ \mathrm{kJ\ mol^{-1}}$, the reaction is spontaneous
(D) $\Delta G = 48.7\ \mathrm{kJ\ mol^{-1}}$, the reaction is non-spontaneous

Answer: (D) $\Delta G = 48.7\ \mathrm{kJ\ mol^{-1}}$, the reaction is non-spontaneous · The council's preliminary key

Q82 AP EAPCET 2023 · 17 May · Shift 1 MCQ

11.0 L of an ideal gas at constant external pressure of 5 atm is compressed isothermally to a final volume of one liter. The heat absorbed and work done respectively, during this compression (in L

atm) are

(A) -50, -50
(B) 50, -50
(C) -50, 50
(D) 50, 50

Answer: (C) -50, 50 · The council's preliminary key

Q83 AP EAPCET 2023 · 17 May · Shift 2 MCQ

If for the reaction $CCl_4(g) \rightarrow C(g) + 4Cl(g)$ the following data is given

$\Delta_{vap}H^{\theta}\ CCl_4(l) = 30\ kJ\ mol^{-1}$, vap = vaporization

$\Delta_f H^{\theta}_{CCl_4} = -136.0\ kJ\ mol^{-1}$, f = formation

$\Delta_a H^{\theta}_{C} = 714.0\ kJ\ mol^{-1}$, a = atomization

$\Delta_a H^{\theta}_{Cl_2} = 242.0\ kJ\ mol^{-1}$, a = atomization

the bond mean enthalpy of C-Cl in CCl_4 (l) is

(A) -319
(B) 326
(C) -326
(D) 292

Answer: (B) 326 · The council's preliminary key

Q84 AP EAPCET 2023 · 17 May · Shift 2 MCQ

If 5 L of an ideal gas at a constant external pressure of 2 atm expands isothermally to a final volume of 'X' L, the system does a work of -2,026.4 J. 'X' (in L) is

(1 L. atm = 101.32 J)

(A) 25
(B) 20
(C) 15
(D) 10

Answer: (C) 15 · The council's preliminary key

Q85 AP EAPCET 2023 · 16 May · Shift 1 MCQ

If the standard enthalpy of sublimation ($\Delta_{sub}H^{\circ}$) of solid CO_2, naphthalene, Li and Na are 25.2, 73.0, 162, 108 kJ mol respectively, the order of sublimation of these substances with temperature is

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(A) Na > Li > Napthalane > Solid CO_2
(B) Solid CO_2 > Na > Napthalane > Li
(C) Solid CO_2 > Napthalane > Na > Li
(D) Li > Na > Napthalane > Solid CO_2

Answer: (C) Solid CO_2 > Napthalane > Na > Li · The council's preliminary key

Q86 AP EAPCET 2023 · 16 May · Shift 1 MCQ

When 'X' g of graphite is completely burnt in a bomb calorimeter in excess of O_2 at 298 K and 1 atm pressure as given in the equation

$C(graphite) + O_2(g) \rightarrow CO_2(g)$.

The temperature of calorimeter raised from 298 K to 302 K. If the heat capacity of the calorimeter and molar enthalpy change for the reaction at 1 atm and 298 K are 20.7 kJ K^{-1} and -248.4 kJ mol^{-1}, 'X' in g is

(A) 8
(B) 2
(C) 3
(D) 4

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

Q87 AP EAPCET 2023 · 16 May · Shift 2 MCQ

If ΔG and ΔS for the reaction $A(g) \rightarrow B(g) + 2C(g)$ at 2000 K are -40 kJ mol^{-1} and 0.22 kJ K^{-1} mol^{-1} respectively, the change in internal energy for the same reaction approximately (in kJ mol^{-1}) is

(A) 366.7
(B) -366.7
(C) 433.3
(D) -433.3

Answer: (A) 366.7 · The council's preliminary key

Q88 AP EAPCET 2023 · 16 May · Shift 2 MCQ

If 100 L of an ideal gas at a pressure of 2 atm compressed isothermally and reversibly to a final volume of 'X' L releases -460.6 L atm heat, the final volume 'X' (in L) is

(A) 1
(B) 20
(C) 10
(D) 2

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

Q89 AP EAPCET 2023 · 16 May · Shift 2 MCQ

Given below are two statements

Assertion (A): The enthalpy of formation of graphite is taken as zero.

Reason (R): Graphite is thermodynamically most stable allotrope of carbon

The correct answer is

(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 incorrect
(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

Q90 AP EAPCET 2023 · 15 May · Shift 1 MCQ

If the standard enthalpy change $(\Delta_r H^\theta)$ for a certain reaction at 298 K and constant pressure is $-1860\,\text{kJ}\,\text{mol}^{-1}$, the standard entropy change $(\Delta_{sys}S^\theta)$ of the same reaction is $-550\,\text{J}\,\text{K}^{-1}\,\text{mol}^{-1}$, which one of the following statements is correct?

(A) $(\Delta_{sys}S^\theta) + \Delta_{surr}S^\theta = -7692\ \text{J}\,\text{mol}^{-1}\,\text{K}^{-1}$, the reaction is spontaneous
(B) $(\Delta_{sys}S^\theta) + \Delta_{surr}S^\theta = -5692\ \text{J}\,\text{mol}^{-1}\,\text{K}^{-1}$, the reaction is non- spontaneous
(C) $(\Delta_{sys}S^\theta) + \Delta_{surr}S^\theta = +5692\ \text{J}\,\text{mol}^{-1}\,\text{K}^{-1}$, the reaction is spontaneous
(D) $(\Delta_{sys}S^\theta) + \Delta_{surr}S^\theta = +7692\ \text{J}\,\text{mol}^{-1}\,\text{K}^{-1}$, the reaction is non- spontaneous

Answer: (C) $(\Delta_{sys}S^\theta) + \Delta_{surr}S^\theta = +5692\ \text{J}\,\text{mol}^{-1}\,\text{K}^{-1}$**, the reaction is spontaneous** · The council's preliminary key

Q91 AP EAPCET 2023 · 15 May · Shift 1 MCQ

If the standard enthalpy change $(\Delta_r\text{H}^\theta)$ for reaction $\text{H}_2(\text{g}) + \text{Br}_2(\text{l}) \rightarrow 2\text{HBr}(\text{g})$ is -72.8 kJ, the standard enthalpy of formation $(\Delta_f\text{H}^\theta)$ of HBr (g) (in kJ mol^{-1}) is

(A) -36.4
(B) +36.4
(C) -18.2
(D) +18.2

Answer: (A) -36.4 · The council's preliminary key

Q92 AP EAPCET 2023 · 15 May · Shift 2 MCQ

If the work done by 2 mol of an ideal gas during isothermal reversible expansion from 5L to 50L is -189.1 L atm. at constant pressure, the temperature of the gas (in °C) is

(A) 500
(B) 227
(C) 327
(D) 127

Answer: (B) 227 · The council's preliminary key

Q93 AP EAPCET 2023 · 15 May · Shift 2 MCQ

At 300 K the enthalpy change for the following reaction is -2800 kJ mol^{-1}

$C_6H_{12}O_6(s) + 6O_2(g) \rightarrow 6CO_2(g) + 6H_2O(l)$

What is the ΔU for the same reaction at 300 K (kJ mol^{-1})?

(A) -2802.49
(B) -2800.00
(C) -2814.94
(D) +2802.49

Answer: (B) -2800.00 · The council's preliminary key

Q94 TS EAMCET 2023 · 14 May · Shift 1 MCQ

For the reaction at 25 °C, $X_2O_4(l) \longrightarrow 2XO_2(g)$, ΔU and ΔS are 2.1 K.Cal and 20 Cal/K respectively. What is ΔG for the reaction at the same temperature?
(R= 2 Cal $K^{-1}mol^{-1}$)

(A) -2.67 k.Cal
(B) +2.67 k.Cal
(C) -1.67 k.Cal
(D) +3.67 k.Cal

Answer: (A) -2.67 k.Cal · The council's preliminary key

Q95 TS EAMCET 2023 · 14 May · Shift 2 MCQ

At T(K) 2 mole of an ideal gas is allowed to expand reversibly and isothermally from a pressure of 10 atmospheres to 1 atmosphere. The work done (in kJ) is

$(R = 8.3\ J\ K^{-1}\ mol^{-1})$

(A) $-3.82 \times 10^{-1} \times T$
(B) $-4.82 \times 10^{-1} \times T$
(C) $-2.82 \times 10^{-2} \times T$
(D) $-3.82 \times 10^{-2} \times T$

Answer: (D) $-3.82 \times 10^{-2} \times T$ · The council's preliminary key

Q96 TS EAMCET 2023 · 13 May · Shift 1 MCQ

Enthalpy of formation of $CO(g)$, $CO_2(g)$ are -110, $-393\ kJmol^{-1}$ respectively. The enthalpy of combustion of CO (in $kJmol^{-1}$) is

(A) -283.0
(B) -110.5
(C) 504
(D) -221.2

Answer: (A) -283.0 · The council's preliminary key

Q97 TS EAMCET 2023 · 13 May · Shift 2 MCQ

Observe the following properties

I. Molar volume
II. Mass
III. Internal energy
IV. Volume
V. Enthalpy
VI. Temperature
VII. Density

The intensive properties in the above list are

(A) I, VI, VII only
(B) I, IV, VI, VII only
(C) I, III, IV, V only
(D) II, III, V only

Answer: (A) I, VI, VII only · The council's preliminary key

Q98 TS EAMCET 2023 · 12 May · Shift 1 MCQ

If 2.5 moles of an ideal gas at a certain temperature are allowed to expand isothermally and reversibly from an initial volume of $2\ dm^3$ to $20\ dm^3$, the work done by the gas is $-16.5\ kJ$. The temperature (in K) of the gas is (Round off to the nearest value)

$(R = 8.314\ J\ K^{-1}\ mol^{-1})$

(A) 445
(B) 245
(C) 345
(D) 745

Answer: (C) 345 · The council's preliminary key

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Q99 TS EAMCET 2023 · 12 May · Shift 2 MCQ

The enthalpies of formation of gaseous N_2O and NO at 298 K are 82.0 and $90.0\,KJ\,mol^{-1}$ respectively. The enthalpy change of the reaction $N_2O(g) + \frac{1}{2}O_2(g) \rightarrow 2NO(g)$ is

(A) -74 kJ
(B) $+98$ kJ
(C) $+89$ kJ
(D) -47 kJ

Answer: (B) $+98$ kJ · The council's preliminary key

Q100 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

In the reaction $H_2O(l) \rightarrow H_2O(s)$ at 0 °C and 1 atm, the internal energy change is -41 kJ/mol. What will be the value of molar enthalpy change?

(A) -41 kJ/ mol
(B) 41 kJ/ mol
(C) 30 kJ/ mol
(D) -30 kJ/ mol

Answer: (A) -41 kJ/ mol · The council's preliminary key

Q101 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

The correct order of "$\Delta_f H^\circ$" values of Diamond (I), Graphite (II) and Fullerene (III) is

(A) I > II > III
(B) II > I > III
(C) III > I > II
(D) III > II > I

Answer: (C) III > I > II · The council's preliminary key

Q102 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

The bond enthalpies of heavy hydrogen, O–O and D–O are +400, +498 and +490 $kJ\,mol^{-1}$, respectively. The $\Delta_r H^\circ$ of the reaction to produce D_2O is

(A) $-300\ kJ\,mol^{-1}$
(B) $-331\ kJ\,mol^{-1}$
(C) $29.1\ kJ\,mol^{-1}$
(D) $2.91\ kJ\,mol^{-1}$

Answer: (B) $-331\ kJ\,mol^{-1}$ · The council's preliminary key

Q103 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

Given $\mathrm{H_2(g)} + \frac{1}{2}\mathrm{O_2(g)} \rightarrow \mathrm{H_2O}(l)$; $\Delta \mathrm{H} = -285$ kJ
$\mathrm{N_2O_5(g)} + \mathrm{H_2O}(l) \rightarrow 2\mathrm{HNO_3}(l)$; $\Delta \mathrm{H} = -76.6$ kJ
$\mathrm{N_2(g)} + 3\mathrm{O_2(g)} + \mathrm{H_2(g)} \rightarrow 2\mathrm{HNO_3}(l)$; $\Delta \mathrm{H} = -348.2$ kJ
Calculate the $\Delta \mathrm{H}$ of $2\mathrm{N_2(g)} + 5\mathrm{O_2(g)} \rightarrow 2\mathrm{N_2O_5(g)}$.

(A) 572 kJ
(B) 419 kJ
(C) 14.5 kJ
(D) 26.8 kJ

Answer: (D) 26.8 kJ · The council's preliminary key

Q104 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

An air bag on adiabatic expansion undergoes 5% increase in its volume. The percentage change in pressure is $[\gamma_{air} = 1.4]$

(A) 5
(B) 6
(C) 7
(D) 9

Answer: (C) 7 · The council's preliminary key

Q105 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

If 92 g Na reacts with water in open vessel at 300 K. What is the value of work done?
[Assume ideal nature of the gaseous product]

(A) 0.0
(B) -4988.4 J
(C) -2494.2 J
(D) -9976.8 J

Answer: (B) -4988.4 J · The council's preliminary key

Q106 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

A certain mass of a gas was brought from state A to B by following three different paths, namely 1, 2 and 3, respectively. Which of the following relations is correct for the work done?
(see the figure above)

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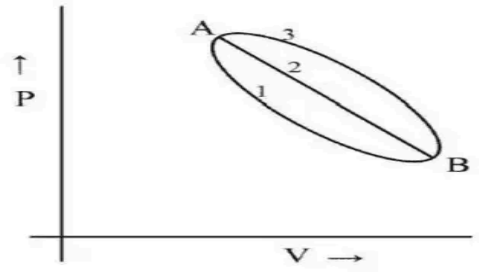
A certain mass of a gas was brought from state A to B by following three different paths, namely 1, 2 and 3, respectively. Which of the following relations is correct for the work done?



Options :

1. $W_1 = W_2 = W_3$
2. $W_1 < W_2 < W_3$
3. $W_1 > W_2 > W_3$
4. $W_1 = W_3 < W_2$

(A) $W_1 = W_2 = W_3$
(B) $W_1 < W_2 < W_3$
(C) $W_1 > W_2 > W_3$
(D) $W_1 = W_3 < W_2$

Answer: (B) $W_1 < W_2 < W_3$ · The council's preliminary key

Q107 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

Among the following given substances, the one with zero $\Delta_f H^\circ$ is

(A) Diamond
(B) Graphite
(C) Fullerene
(D) Bituminous coal

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

Q108 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

Which of the followings is not a state function?

(A) Internal Energy
(B) Work
(C) Enthalpy
(D) Entropy

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

Q109 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

Calculate $\Delta_r H$ (kJ mol^{-1}) of the following reaction
$C_2H_5OH(l) + 7/2\ O_2(g) \rightarrow 2\ CO_2(g) + 3\ H_2O(l)$
Molecule | $\Delta_f H^0$ (kJ mol^{-1})
$C_2H_5OH(l)$ | -280
$CO_2(g)$ | -400
$H_2O(l)$ | -290

(A) -1950
(B) -1100
(C) -1390
(D) -700

Answer: (C) -1390 · The council's preliminary key

Q110 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

The atomization enthalpy of CH_4 is $1660\ kJmol^{-1}$. The C-H bond enthalpy of each successive step in $CH_4 \rightarrow CH_3 \rightarrow CH_2 \rightarrow CH$ are +15, +30 and +45 kJ mol^{-1} higher than the mean bond enthalpy of CH bonds, respectively. The bond enthalpy of the last C-H unit is

(A) $400\ kJmol^{-1}$
(B) $325\ kJmol^{-1}$
(C) $475\ kJmol^{-1}$
(D) $385\ kJmol^{-1}$

Answer: (B) $325\ kJmol^{-1}$ · The council's preliminary key

Q111 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

Which of the following conditions are not suitable for a spontaneous reaction?

(A) $\Delta H < 0$ and $\Delta S > 0$ at low temperature
(B) $\Delta H < 0$ and $\Delta S < 0$ at high temperature
(C) $\Delta H < 0$ and $\Delta S < 0$ at low temperature
(D) $\Delta H > 0$ and $\Delta S > 0$ at high temperature

Answer: (B) $\Delta H < 0$ **and** $\Delta S < 0$ **at high temperature** · The council's preliminary key

Q112 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

Which of the following are extensive properties? (A) Heat capacity (B) Entropy (C) Gibbs Energy (D) Concentration (E) Vapour pressure.

(A) A, B, C and E
(B) A, B, and D
(C) A, B, C only
(D) D and E only

Answer: (C) A, B, C only · The council's preliminary key

Q113 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

Identify the correct statements from the following.
(i). For adiabatic process, $\Delta U = W_{adiabatic}$
(ii). Work is a path function.
(iii). Volume is an extensive property.

(A) i, ii, iii
(B) i, iii only
(C) ii, iii only
(D) i, ii only

Answer: (A) i, ii, iii · The council's preliminary key

Q114 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

The standard Gibbs energy (ΔG^0) for the following reaction is
$\mathrm{A(s) + B^{2+}(aq) \rightleftharpoons A^{2+}(aq) + B(s)}$, $K_c = 10^{12}$ at $25^\circ\mathrm{C}$ (K_c = equilibrium constant)

(A) -150 kJ
(B) -96.80 kJ
(C) 68.47 kJ
(D) -100 kJ

Answer: (C)

- 68.47 kJ

· The council's preliminary key

Q115 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

Identify the reaction/process in which the entropy decreases

(A) $\mathrm{H_2O}\ (l) \longrightarrow \mathrm{H_2O}\ (s)$
(B) $\mathrm{H_2O}\ (l) \longrightarrow \mathrm{H_2O}\ (g)$
(C) $\mathrm{H_2O}\ (g) \longrightarrow 2\mathrm{H}\ (g)$
(D) Crystal (100 K) $\longrightarrow$ Crystal (200 K)

Answer: (A) $\mathrm{H_2O}\ (l) \longrightarrow \mathrm{H_2O}\ (s)$ · The council's preliminary key

Q116 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

From the following data at 25°C, calculate the $\Delta_r H^0$ for $H_2O(g) \rightarrow 2H(g) + O(g)$.
reaction: $\Delta_r H^0$ $(kJ\,mol^{-1})$
$\frac{1}{2}H_2(g) + \frac{1}{2}O_2(g) \rightarrow OH(g)$: 42.09
$H_2(g) + \frac{1}{2}O_2(g) \rightarrow H_2O(g)$: −242
$H_2(g) \rightarrow 2H(g)$: 436
$O_2(g) \rightarrow 2O\ (g)$: 496

(A) $1174\ kJ\,mol^{-1}$
(B) $742\ kJ\,mol^{-1}$
(C) $926\ kJ\,mol^{-1}$
(D) $690\ kJ\,mol^{-1}$

Answer: (C) $926\ kJ\,mol^{-1}$ · The council's preliminary key

Q117 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

Enthalpy of formation of CO (g), CO_2 (g), N_2O (g) and N_2O_4 (g) are -110, -393, 81, 9.7 $kJ\ mol^{-1}$ respectively. Calculate $\Delta_r H$ for the following reaction.
N_2O_4 (g) + 3CO (g) → N_2O (g) + $3CO_2$(g)

(A) $-569\ kJ\ mol^{-1}$
(B) $+569\ kJ\ mol^{-1}$
(C) $+778\ kJ\ mol^{-1}$
(D) $-778\ kJ\ mol^{-1}$

Answer: (D) $-778\ kJ\ mol^{-1}$ · The council's preliminary key

Q118 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

For a reaction to be spontaneous, the required conditions are

(A) $\Delta_r H^\circ$ = - ve, $\Delta_r S^\circ$ = - ve, at High T
(B) $\Delta_r H^\circ$ = + ve, $\Delta_r S^\circ$ = + ve, at High T
(C) $\Delta_r H^\circ$ = + ve, $\Delta_r S^\circ$ = + ve, at Low T
(D) $\Delta_r H^\circ$ = + ve, $\Delta_r S^\circ$ = - ve, at all T

Answer: (B) $\Delta_r H^\circ$ = + ve, $\Delta_r S^\circ$ = + ve, at High T · The council's preliminary key

Q119 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

Identify the correct statements from the following
I. At 0 K, the entropy of pure crystalline materials approach zero.
II. Entropy for the process, $H_2O(l) \longrightarrow H_2O\ (g)$ decreases.
III. Gibbs energy is a state function.

(A) i, ii, iii
(B) i, iii Only
(C) ii, iii Only
(D) i, ii Only

Answer: (B) i, iii Only · The council's preliminary key

Q120 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

Use the data from table to estimate the enthalpy of formation of $\mathrm{CH_3CHO}$.
Bond Enthalpy | Bond | Enthalpy of formation
400 kJ $\mathrm{mol^{-1}}$ | C - H | C(g): 700 kJ $\mathrm{mol^{-1}}$
350 kJ $\mathrm{mol^{-1}}$ | C - C | H (g): 200 kJ $\mathrm{mol^{-1}}$
700 kJ $\mathrm{mol^{-1}}$ | C = O | O (g): 250 kJ $\mathrm{mol^{-1}}$

(A) -200 kJ $\mathrm{mol^{-1}}$
(B) -400 kJ $\mathrm{mol^{-1}}$
(C) -350 kJ $\mathrm{mol^{-1}}$
(D) -150 kJ $\mathrm{mol^{-1}}$

Answer: (A) -200 kJ $\mathrm{mol^{-1}}$ · The council's preliminary key

Q121 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

For a reaction $2\mathrm{CO}\,(\mathrm{g}) + \mathrm{O_2}\,(\mathrm{g}) \rightleftharpoons 2\mathrm{CO_2}\,(\mathrm{g})$, $\Delta_r G^0 = -128$ kJ at 300 K. If $\Delta_r S^\circ$ of the reaction is $-40\ \mathrm{J\,K^{-1}}$, calculate $\Delta_r U$ of the reaction.

(A) $-137.5\ \mathrm{kJ}$
(B) $-128\ \mathrm{kJ}$
(C) $-140\ \mathrm{kJ}$
(D) $126.2\ \mathrm{kJ}$

Answer: (A) $-137.5\ \mathrm{kJ}$ · The council's preliminary key

Q122 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

Which of the following equations are correct?

(A) $\mathrm{U = H - PV}$

(B) $\mathrm{G = H - TS}$

(C) $\mathrm{U = q + W}$

(A) A,B and C
(B) A and B only
(C) A and C only
(D) B and C only

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

Q123 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

Identify the reaction/process in which the entropy increases.

(A) H (g) + H (g) $\rightarrow$ H_2 (g)
(B) H_2O (g) $\rightarrow$ H_2O (s)
(C) H_2O (l) $\rightarrow$ H_2O (g)
(D) A (g) + B (g) + C(s) $\rightarrow$ 2D(s)

Answer: (C) H_2O (l) $\rightarrow$ H_2O (g) · The council's preliminary key

Q124 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

State 1 $\rightleftharpoons$ State 2 $\rightleftharpoons$ State 3
State 1: T = 300 K, P = 15 bar, 1 mole; State 2: T = 300 K, P = 10 bar, 1 mole; State 3: T = 300 K, P = 5 bar, 1 mole.
Above shows a cyclic process. Calculate the total work done during one complete cycle.
(Assume a single step to reach the next state).

(A) 25/3 L bar
(B) -25/3 L bar
(C) 50/3 L bar
(D) -50/3 L bar

Answer: (C) 50/3 L bar · The council's preliminary key

Q125 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

Observe the following properties:
Volume, enthalpy, density, temperature, heat capacity, pressure, internal energy.
The number of extensive properties in the above list is

(A) 4
(B) 5
(C) 6
(D) 3

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

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Q126 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

Match the following

A. Isothermal process i q= ΔU

B. Adiabatic process ii W= - P × ΔV

C. Isobaric process iii W= ΔU

D. Isochoric process iv W= - nRTln $\left(\frac{V_f}{V_i}\right)$

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

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

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

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

Answer: (A) A – (iv), B – (iii), C – (ii), D – (i) · The council's preliminary key

Q127 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

Which of the following expression is correct

(A) $\Delta G = -RT \ln K$

(B) $\Delta G = \frac{1}{RT^2 \ln K}$

(C) $\Delta G^0 = -RT \ln K$

(D) $\Delta G^0 = -\frac{1}{RT^2 \ln K}$

Answer: (C) $\Delta G^0 = -RT \ln K$ · The council's preliminary key

Q128 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

The bond dissociation energies of H_2, Cl_2 and HCl are given as 104, 58 and 103 kcal.mol^{-1} respectively. Find the enthalpy of formation of HCl.

(A) $-44\ \text{kcal.mol}^{-1}$

(B) $-22\ \text{kcal.mol}^{-1}$

(C) $+44\ \text{kcal.mol}^{-1}$

(D) $+11\ \text{kcal.mol}^{-1}$

Answer: (B) $-22\ \text{kcal.mol}^{-1}$ · The council's preliminary key

Q129 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

For the reaction at 298K, $A_2B_4 \rightarrow 2AB_2$, $\Delta H = 2\ kJ$ and $\Delta S = 20\ J/K$ at constant P & T, the reaction will be _____

(A) spontaneous & entropy driven
(B) spontaneous & enthalpy driven
(C) non-spontaneous
(D) at equilibrium

Answer: (A) spontaneous & entropy driven · The council's preliminary key

Q130 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

Find the value of ΔH° (in $\mathrm{kJ.mol^{-1}}$) in the following reaction:
$N_{2(g)} + 3\,H_{2(g)} \xrightarrow{Fe,\,\Delta} 2\,NH_{3(g)} + \Delta H^{\circ}$

(A) 92.6
(B) -92.6
(C) 285
(D) -285

Answer: (B) -92.6 · The council's preliminary key

Q131 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

The boiling point of water at $1\ \mathrm{atm}$ is $100\,^{\circ}\mathrm{C}$. Which among the following is true for vaporization of water at $75\,^{\circ}\mathrm{C}$?

(A) $\Delta G^{0}_{vap} > 0$
(B) $\Delta H^{0}_{vap} < 0$
(C) $K_{vap} = 1$
(D) $\Delta S^{0}_{vap} < 0$

Answer: (A) $\Delta G^{0}_{vap} > 0$ · The council's preliminary key

Q132 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

An ideal gas expanded irreversibly against $10\ \mathrm{bar}$ pressure from $20\ \mathrm{L}$ to $30\ \mathrm{L}$. Calculate Q if the process is Isoenthalpic. $1\ \mathrm{L.bar} = 100\ \mathrm{J}$

(A) 0
(B) $100\ \mathrm{J}$
(C) $-100\ \mathrm{J}$
(D) $10\ \mathrm{kJ}$

Answer: (D) $10\ \mathrm{kJ}$ · The council's preliminary key

Q133 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

Which condition among the following holds true at the stage of half-completion for the reaction $A \rightleftharpoons B$?

(A) $\Delta G^{\ominus} = 0$
(B) $\Delta G^{\ominus} > 0$
(C) $\Delta G^{\ominus} < 0$
(D) $\Delta G^{\ominus} = -RT \ln 2$

Answer: (A) $\Delta G^{\ominus} = 0$ · The council's preliminary key

Q134 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

The change in internal energy equals _____

(A) Isothermal work
(B) Isochoric work
(C) Isobaric work
(D) Adiabatic work

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

Q135 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

When equal volumes of Helium and Neon at same temperature and pressure are mixed, the ratio $C_p : C_v$ of the mixture equals _____

(A) 3 : 5
(B) 1 : 2
(C) 5 : 3
(D) 2 : 1

Answer: (C) 5 : 3 · The council's preliminary key

Q136 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

Which among the following are true for an irreversible isothermal expansion of an ideal gas?
(i) $W = -Q$
(ii) $\Delta U = 0$
(iii) $\Delta H \neq 0$
(iv) $\Delta T = 0$

(A) Only (i), (ii) & (iii)
(B) Only (i), (ii) & (iv)
(C) Only (ii), (iii) & (iv)
(D) (i), (ii), (iii) & (iv)

Answer: (B) Only (i), (ii) & (iv) · The council's preliminary key

EdLoop EAPCET

Q137 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

The heat liberated when $1.89\ g$ of benzoic acid is burnt in a bomb calorimeter at $25\ ^{\circ}C$ increases the temperature of $18.94\ kg$ of water by $0.632\ ^{\circ}C$. If the specific heat of water at $25\ ^{\circ}C$ is $0.998\ cal\ /\ (g\ -^{\circ}\ C)$, then find the heat of combustion of benzoic acid.

(A) $2540\ kJ\ mol^{-1}$
(B) $1975\ kJ\ mol^{-1}$
(C) $3240\ kJ\ mol^{-1}$
(D) $2825\ kJ\ mol^{-1}$

Answer: (C) $3240\ kJ\ mol^{-1}$ · The council's preliminary key

Q138 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

For strong acid and strong base neutralization net chemical change is $\mathrm{H^+ + OH^- \rightarrow H_2O\ (l)}\ \Delta H_r^0 = -55.84\ \mathrm{kJ\ mol^{-1}}$. If enthalpy of neutralization of $\mathrm{CH_3COOH}$ by NaOH is $49.86\ \mathrm{kJ\ mol^{-1}}$ then enthalpy of ionization of $\mathrm{CH_3COOH}$ is _____

(A) $5.98\ \mathrm{kJ\ mol^{-1}}$
(B) $-5.98\ \mathrm{kJ\ mol^{-1}}$
(C) $105.7\ \mathrm{kJ\ mol^{-1}}$
(D) $-59.8\ \mathrm{kJ\ mol^{-1}}$

Answer: (A) $5.98\ \mathrm{kJ\ mol^{-1}}$ · The council's preliminary key

Q139 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

Out of molar entropy (I), specific volume (II), heat capacity (III), volume (IV), extensive properties are

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

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

Q140 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

When reaction is carried out at standard states then at the equilibrium _____

(A) $\Delta H^0 = 0$
(B) $\Delta S^0 = 0$
(C) equilibrium Const $K = 0$
(D) equilibrium Const $K = 1$

Answer: (D) equilibrium Const $K = 1$ · The council's preliminary key

Q141 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

For the reaction $H_2O_{(l)} \longrightarrow H_2O_{(g)}$ at $T = 100\ ^\circ C$ and $P = 1\ atm$, choose the correct option:

(A) $\Delta S_{system} > 0$ & $\Delta S_{surroundings} > 0$

(B) $\Delta S_{system} > 0$ & $\Delta S_{surroundings} < 0$

(C) $\Delta S_{system} < 0$ & $\Delta S_{surroundings} > 0$

(D) $\Delta S_{system} < 0$ & $\Delta S_{surroundings} < 0$

Answer: (B) $\Delta S_{system} > 0$ & $\Delta S_{surroundings} < 0$ · The council's preliminary key

Q142 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

At $60\ ^\circ C$, dinitrogen tetroxide is fifty percent dissociated. Find its standard free energy change at this temperature and one atmosphere. [Given: $\log 1.33 = 0.1239$]

(A) $-650\ \text{J.mol}^{-1}$

(B) $-830\ \text{J.mol}^{-1}$

(C) $-790\ \text{J.mol}^{-1}$

(D) $-875\ \text{J.mol}^{-1}$

Answer: (C) $-790\ \text{J.mol}^{-1}$ · The council's preliminary key

Q143 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

When an ideal gas expands isothermally from 5 m^3 to 10 m^3 at 25 °C against a constant pressure of $10^7\ N.m^{-2}$, then the work done on the gas is _____

(A) $-100\ MJ$

(B) $-50\ MJ$

(C) $-0.5\ MJ$

(D) $-10^5\ MJ$

Answer: (B) $-50\ MJ$ · The council's preliminary key

Q144 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

Find the approximate value of $(\Delta H - \Delta U)$ in $J.mol^{-1}$, for the formation of CO from its elements at 298 K. $(R = 8.314\ J.K^{-1}.mol^{-1})$

(A) -1238

(B) 1238

(C) 2477

(D) -2477

Answer: (B) 1238 · The council's preliminary key

Q145 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

If a chemical reaction is known to be non-spontaneous at $298\ K$ but spontaneous at $350\ K$, then which among the following conditions is true for the reaction?

(A) $\Delta G = -ve,\ \Delta H = -ve,\ \Delta S = +ve$
(B) $\Delta G = +ve,\ \Delta H = +ve,\ \Delta S = +ve$
(C) $\Delta G = -ve,\ \Delta H = +ve,\ \Delta S = +ve$
(D) $\Delta G = +ve,\ \Delta H = +ve,\ \Delta S = -ve$

Answer: (C) $\Delta G = -ve,\ \Delta H = +ve,\ \Delta S = +ve$ · The council's preliminary key

Q146 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

Standard entropies of X_2, Y_2 and XY_3 are $60, 40$ and $50\ \mathrm{J/K/mol}$ respectively. At what temperature the following reaction will be at equilibrium
$\frac{1}{2}X_2 + \frac{3}{2}Y_2 \rightleftharpoons XY_3,\ \Delta H = -30\ kJ$

(A) $500\ K$
(B) $750\ K$
(C) $1000\ K$
(D) $1250\ K$

Answer: (B) $750\ K$ · The council's preliminary key

Q147 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

When the temperature of 2 moles of an ideal gas is increased by $20\ ^\circ\mathrm{C}$ at constant pressure, find the work involved in the process.

(A) $5R$
(B) $40R$
(C) $15R$
(D) $20R$

Answer: (B) $40R$ · The council's preliminary key

Q148 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

Using the data provided, find the value of equilibrium constant for the following reaction at $298\ \mathrm{K}$ and $1\ \mathrm{atm}$ pressure. $\mathrm{NO_{(g)}} + \frac{1}{2}\mathrm{O_{2\,(g)}} \rightleftharpoons \mathrm{NO_{2\,(g)}}$
$\Delta_f H^\circ(\mathrm{NO_{(g)}}) = 90.4\ \mathrm{kJ.mol^{-1}}$
$\Delta_f H^\circ(\mathrm{NO_{2(g)}}) = 32.48\ \mathrm{kJ.mol^{-1}}$
$\Delta S^\circ\ @\ 298\ \mathrm{K} = -70.8\ \mathrm{J.K^{-1}.mol^{-1}}$
$\mathrm{antilog}(0.50) = 3162$

(A) 3.162×10^{4}

(B) 3.162×10^{-4}

(C) 3.162×10^{6}

(D) 3.162×10^{7}

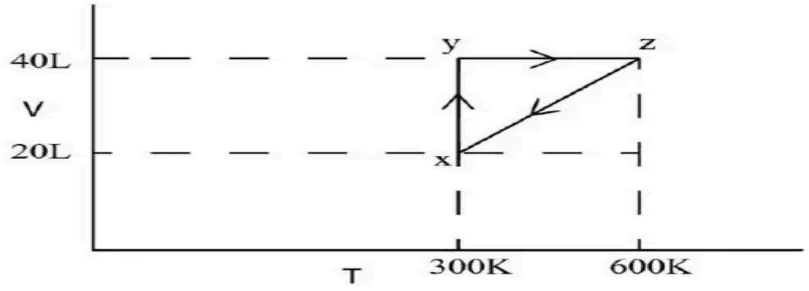
Answer: (C) 3.162×10^{6} · The council's preliminary key

Q149 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

The following graph indicates the system containing 1 mole of gas involving various steps. When it moves from z to x, the type of undergoing process is

(see the figure above)

The following graph indicates the system containing 1 mole of gas involving various steps. When it moves from z to x, the type of undergoing process is



Options :

1. Cyclic
2. Isothermal
3. Isochoric
4. Isobaric

(A) Cyclic

(B) Isothermal

(C) Isochoric

(D) Isobaric

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

Q150 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

Which of the following relation is correct?

(A) $dG = VdP + SdT$
(B) $dG = VdP - SdT$
(C) $\Delta G = -RT\,ln(K)$
(D) $dU = PdV + T\,dS$

Answer: (B) $dG = VdP - SdT$ · The council's preliminary key

Q151 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

Which of the following options are correct?
Options | $\Delta_r H^\circ$ | $\Delta_r S^\circ$ | $\Delta_r G^\circ$ | Spontaneity of the reaction
A) + | + | + | Spontaneous at low T
B) + | + | - | Spontaneous at high T
C) - | - | - | Spontaneous at low T
D) + | - | + | Spontaneous at high T

(A) A, B, C only
(B) B only
(C) B, C only
(D) C, D only

Answer: (C) B, C only · The council's preliminary key

Q152 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

Which of the following is not an intensive property?

(A) Entropy
(B) Melting point
(C) Specific gravity
(D) Refractive index

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

Q153 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

Enthalpy of hydrogenation of one mole of benzene to cyclohexane is
[Resonance energy of benzene = – 150.4 kJ/mole.
Enthalpy of hydrogenation of cyclohexene = –119.5 kJ/mole]

(A) – 208.1 kJ/mole
(B) – 358.1 kJ/mole
(C) +150.4 kJ/mole
(D) – 269.9 kJ/mole

Answer: (A) – 208.1 kJ/mole · The council's preliminary key

Q154 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

Which of the following compounds has the highest standard molar entropy?

(A) $SO_2(g)$
(B) $SO_3(g)$
(C) $CO_2(g)$
(D) $CO(g)$

Answer: (B) $SO_3(g)$ · The council's preliminary key

Q155 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

A and B on mixing form an ideal solution at room temperature. Which of the following options is correct for this process?

(A) ΔG: $-$; ΔS System: $+$; ΔS Surroundings: $+$; ΔH: $+$
(B) ΔG: $+$; ΔS System: $+$; ΔS Surroundings: 0; ΔH: $+$
(C) ΔG: $-$; ΔS System: $+$; ΔS Surroundings: 0; ΔH: 0
(D) ΔG: $-$; ΔS System: $-$; ΔS Surroundings: $+$; ΔH: $+$

Answer: (C) ΔG: $-$; ΔS System: $+$; ΔS Surroundings: 0; ΔH: 0 · The council's preliminary key

Q156 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

At $300\ K$, $PCl_{5(g)} \rightleftharpoons PCl_{3(g)} + Cl_{2(g)}$ and $K_p = 1.8 \times 10^{-7}$. Then calculate its ΔG^0.

(A) $38.72\ kJ.mol^{-1}$
(B) $44.80\ kJ.mol^{-1}$
(C) $80.80\ kJ.mol^{-1}$
(D) $45.80\ kJ.mol^{-1}$

Answer: (A) $38.72\ kJ.mol^{-1}$ · The council's preliminary key

Q157 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

When is a reaction is spontaneous?

(A) $\Delta G = 0$
(B) $\Delta G < 0$
(C) $\Delta G > 0$
(D) Can't be determined based on ΔG

Answer: (B) $\Delta G < 0$ · The council's preliminary key

Q158 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

For the reaction, $3C_2H_{2(g)} \longrightarrow C_6H_{6(g)}$, calculate the standard enthalpy change. The values of ΔH_f for C_2H_2 and C_6H_6 respectively are $250\ kJ.mol^{-1}$ and $90\ kJ.mol^{-1}$.

(A) $+660\ kJ.mol^{-1}$
(B) $-260\ kJ.mol^{-1}$
(C) $+260\ kJ.mol^{-1}$
(D) $-660\ kJ.mol^{-1}$

Answer: (D) $-660\ kJ.mol^{-1}$ · The council's preliminary key

Q159 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

For the reaction, $2H_{2(g)} + O_{2(g)} \longrightarrow 2H_2O_{(g)}$. At 300 K, ΔG and ΔH of water are $-228.4\ kJ.mol^{-1}$ and $-241.60\ kJ.mol^{-1}$ respectively. The, calculate the value of change in entropy for the given reaction.

(A) $+88$ J
(B) $+4.4$ kJ
(C) -88 J
(D) -44 J

Options (3) or (4) were accepted. More than one answer was accepted. · The council's preliminary key

Q160 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

For the reaction $N_2O_{4(g)} \rightleftharpoons 2NO_{2(g)}$ if dinitrogen tetroxide is 50% dissociated at 60 °C, the standard free energy change at this temperature and 1 atm pressure is

(A) $-367.8\ \mathrm{kJ.mol^{-1}}$
(B) $-763.8\ \mathrm{kJ.mol^{-1}}$
(C) $-867\ \mathrm{kJ.mol^{-1}}$
(D) $-249\ \mathrm{kJ.mol^{-1}}$

Answer: (B) $-763.8\ \mathrm{kJ.mol^{-1}}$ · The council's preliminary key

Q161 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

If $\Delta H > 0$ and $\Delta S > 0$, the reaction can proceed spontaneously at _____

(A) Low temperature
(B) High temperature
(C) All temperatures
(D) Will never be spontaneous

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

Q162 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

Work done by an ideal gas at a constant volume is _____

(A) $-\frac{\Delta P}{P}$

(B) $-V\,\Delta P$

(C) 0

(D) $\frac{nR}{P}$

Answer: (C) 0 · The council's preliminary key

Q163 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

For the reaction $2\mathrm{NH}_{3(s)} + \mathrm{CO}_{2(g)} \rightleftharpoons \mathrm{NH}_2\mathrm{CONH}_{2(aq)} + \mathrm{H}_2\mathrm{O}_{(l)}$, find the value of equilibrium constant at 295 K. Given, standard Gibbs energy change at the given temperature is $-13.9\ \mathrm{kJ.mol}^{-1}$

(A) 2.88×10^2

(B) 2.58×10^2

(C) 2.40×10^2

(D) 2.65×10^2

Answer: (A) 2.88×10^2 · The council's preliminary key

Q164 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

Among the following processes, for which process, the change in entropy (ΔS) is negative?

(A) Sublimation of Iodine

(B) Freezing of water

(C) Burning of rocket fuel

(D) Dissolution of Sugar

Answer: (B) Freezing of water · The council's preliminary key

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Q165 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

For an isothermal and free expansion of an ideal gas, which of the following is true?

1) For an adiabatic change, heat (q) is non zero

2) For an adiabatic change, heat (q) is zero

3) For an isothermal reversible change, heat (q) is zero

4) For an isothermal process, the temperature changes

(A) 1

(B) 2

(C) 3

(D) 4

Answer: (B) 2 · The council's preliminary key

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Q166 AP EAMCET 2020 · 17 Sep · Shift 1 MCQ

Which of the following is an extensive property?

(A) Temperature
(B) Volume
(C) Density
(D) Pressure

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

Q167 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

For a thermodynamic system, which among the following is not a state function?

(A) Enthalpy
(B) Internal energy
(C) Free energy
(D) Work

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

Q168 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

In which of the processes, the entropy will decrease

(A) $\mathrm{H_2\,(g) \rightarrow 2H(g)}$
(B) Liquid water crystallizes to ice
(C) Temperature of ice is raised from 10 K to 115 K
(D) $\mathrm{2NaHCO_3\,(s) \rightarrow Na_2CO_3\,(s) + CO_2\,(g) + H_2O\,(s)}$

Answer: (B) Liquid water crystallizes to ice · Official TGCHE final key

Q169 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

For the reactions,
$\mathrm{2Cl\,(g) \rightarrow Cl_2\,(g)}$
$\mathrm{CO_2\,(g) \rightarrow CO\,(g) + \frac{1}{2}O_2\,(g)}$
what are the signs of ΔS, respectively?

(A) Positive and positive
(B) Positive and negative
(C) Negative and positive
(D) Negative and negative

Answer: (C) Negative and positive · Official TGCHE final key

Q170 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

Which of the following statement is correct?

(A) ΔG is equal to ΔG° when the system is at the standard state

(B) ΔG° is zero when the system is at equilibrium

(C) ΔG measures activation energy of a reaction

(D) When ΔG is positive, the reaction should proceed forward to form more product

Answer: (A) ΔG is equal to ΔG° when the system is at the standard state · Official TGCHE final key

Q171 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

Find the value of the equilibrium constant (K) of a reaction at 300 K when standard Gibbs free energy change is $-25\ \mathrm{kJ\,mol^{-1}}$?
(Consider R = 8.33 $\mathrm{J\,mol^{-1}K^{-1}}$)

(A) e^8

(B) e^9

(C) e^{10}

(D) e^{11}

Answer: (C) e^{10} · Official TGCHE final key

Q172 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

Which of the following statements regarding the first law of thermodynamics is correct?

(A) The energy of the isolated system plus the energy of the surrounding is constant

(B) The energy of the isolated system minus the energy of the surrounding is constant

(C) The energy of an isolated system is constant

(D) The energy of an isolated system varies

Answer: (C) The energy of an isolated system is constant · Official TGCHE final key

Q173 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

ΔH & ΔS for a reaction are +30.0 $\mathrm{kJ\,mol^{-1}}$ and 0.06 $\mathrm{kJ\,K^{-1}\,mol^{-1}}$ at 1 atm pressure. The temperature at which free energy change is equal to zero and nature of the reaction below this temperature are

(A) 500 °C and non-spontaneous

(B) 227 °C and non-spontaneous

(C) 400 °C and spontaneous

(D) 127 °C and spontaneous

Answer: (B) 227 °C and non-spontaneous · Official TGCHE final key

Q174 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

What will be the ΔU value, when one mole of oxygen (O_2) is going from −20 °C to 40 °C at constant volume?
(Molar heat capacity for oxygen $\simeq$ 20.8 J $\mathrm{mol^{-1}K^{-1}}$)

(A) 2496 J
(B) 20.8 J
(C) 416 J
(D) 1248 J

Answer: (D) 1248 J · Official TGCHE final key

Q175 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

For which of the following systems, the difference between ΔH and ΔU is not significant?
(i) Solids
(ii) Gases
(iii) Mixture of gases and liquids
(iv) Liquids

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

Answer: (A) (i) and (iv) · Official TGCHE final key

Q176 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

Which of the following is not an extensive property?

(A) Volume
(B) Entropy
(C) Heat capacity at constant volume
(D) Molar heat capacity at constant pressure

Answer: (D) Molar heat capacity at constant pressure · Official TGCHE final key

Q177 TS EAMCET 2019 · 6 May · Shift 1 MCQ

What is the standard enthalpy of reaction (in kJ) when two moles of $\mathrm{Fe_2O_3(s)}$ reacts with $\mathrm{H_2}$ gas to give Fe metal?
($\Delta_f H^\circ$ of $\mathrm{Fe_2O_3(s)}$ and $\mathrm{H_2O}(l)$ are -824.2 and -285.83 kJ $\mathrm{mol^{-1}}$ respectively)

(A) -66.58
(B) -33.3
(C) -538.37
(D) -1110.03

Answer: (A) -66.58 · Official TGCHE final key

Q178 TS EAMCET 2019 · 4 May · Shift 1 MCQ

Enthalpy change for freezing of 1 g of water at 1 bar and $0\ ^{\circ}\mathrm{C}$ is 334 J. Calculate the internal energy change in J when 1 g of water is converted into ice?

(A) 205
(B) 334
(C) 0
(D) 668

Answer: (B) 334 · Official TGCHE final key

Q179 TS EAMCET 2019 · 4 May · Shift 1 MCQ

For a chemical reaction, the standard Gibbs energy change, $\Delta G^{\ominus}$ is $-7.64 \times 10^4\ \mathrm{J\ mol^{-1}}$. What is the value of equilibrium constant (K)?

(A) $K = 1$
(B) $K > 1$
(C) $K < 1$
(D) $K = 0$

Answer: (B) $K > 1$ · Official TGCHE final key

Q180 TS EAMCET 2019 · 4 May · Shift 1 MCQ

The heat of combustion ($\mathrm{kJ\ mol^{-1}}$) is highest for

(A) $\mathrm{H_2(g)}$
(B) $\mathrm{H_2(l)}$
(C) LPG
(D) $\mathrm{CH_4(g)}$

Answer: (C) LPG · Official TGCHE final key

Q181 TS EAMCET 2019 · 4 May · Shift 2 MCQ

The increase in entropy in J $\mathrm{K^{-1}}$ of a substance when it absorbs 1 kJ of heat energy at 3 K is

(A) 3.33
(B) 333.3
(C) 0.333
(D) 0.0333

Answer: (B) 333.3 · Official TGCHE final key

Q182 TS EAMCET 2019 · 4 May · Shift 2 MCQ

Two compounds form an ideal solution at room temperature. Which of the following are correct for this ideal solution?
a) $\Delta G = +\text{ve}$
b) $\Delta S = +\text{ve}$ surrounding
c) $\Delta S = +\text{ve}$ system
d) $\Delta_{mix} H = 0$

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

Answer: (A) c, d · Official TGCHE final key

Q183 TS EAMCET 2019 · 3 May · Shift 1 MCQ

Find the heat required to make water at 30 °C from 10 g of ice at 0.0 °C. (enthalpy of fusion of ice = 333.55 J g^{-1}, Cp of water = 4.18 J g^{-1} K^{-1})

(A) 4.0 kJ
(B) 5.0 kJ
(C) 3.59 kJ
(D) 4.59 kJ

Answer: (D) 4.59 kJ · Official TGCHE final key

Q184 TS EAMCET 2019 · 3 May · Shift 1 MCQ

ΔH_f° values (in kJ mol^{-1}) for graphite, diamond and C_{60} are respectively

(A) 0; 1.9; 38.1
(B) 1.8; 1.9; 38.1
(C) 0; 0; 21.4
(D) 1.8; 1.9; 2.0

Answer: (A) 0; 1.9; 38.1 · Official TGCHE final key

Q185 TS EAMCET 2019 · 3 May · Shift 2 MCQ

Which of the following does not follow first law of thermodynamics? (w = work; q = heat; ΔU = change in internal energy)

(A) $w > 0; q > 0; \Delta U < 0$
(B) $w = 0; q = 0; \Delta U = 0$
(C) $w > 0; q = 0; \Delta U > 0$
(D) $w < 0; q < 0; \Delta U < 0$

Answer: (A) $w > 0; q > 0; \Delta U < 0$ · Official TGCHE final key

Q186 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

Match the following.
List - I
A) $\Delta U = W_{ad}$
B) $\Delta U = q - W$
C) $\Delta U = -q$
D) $\Delta U = 0$
List - II
I) Isothermal reversible expansion
II) Wall is adiabatic
III) Thermally conducting walls
IV) Isolated system
V) Closed system
The correct answer is

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

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

Q187 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

If $\mathrm{K_p}$ for the conversion of oxygen to ozone at $400\ \mathrm{K}$ is 1.0×10^{-30}, its standard Gibbs energy change in $\mathrm{kJ\,mol^{-1}}$ is approximately

(A) 229.8
(B) 114.9
(C) -229.8
(D) -114.9

Answer: (A) 229.8 · Official APSCHE final key

EdLoop EAPCET

Q188 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

The standard molar enthalpy of vaporisation of benzene $\Delta_{vap}H^{\circ}$ at 353 K is 30.8 $\mathrm{kJ\ mol^{-1}}$. If the benzene vapours behave as an ideal gas, the change in internal energy of vaporisation of 78 g of benzene at 353 K in $\mathrm{kJ\ mol^{-1}}$ is (1 L-atm = 101.32 J)

(A) 37.87
(B) 27.87
(C) 33.74
(D) 17.87

Answer: (B) 27.87 · Official APSCHE final key

Q189 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

The heat required to rise the temperature of 54 g of aluminium from $40\ ^{\circ}\mathrm{C}$ to $60\ ^{\circ}\mathrm{C}$ in J is (molar heat capacity of aluminium in this temperature range is $24\ \mathrm{J\ mol^{-1}\ K^{-1}}$; atomic weight of Al is 27)

(A) 480
(B) 800
(C) 960
(D) 1280

Answer: (C) 960 · Official APSCHE final key

Q190 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

What is the nature of reaction at 298 K, if the entropy change and enthalpy change for a chemical reaction are $7.4\ \mathrm{cal\ K^{-1}}$ and $-2.5 \times 10^{3}\ \mathrm{cal}$ respectively.

(A) Reversible
(B) Spontaneous
(C) Non-Spontaneous
(D) Irreversible

Answer: (B) Spontaneous · Official APSCHE final key

Q191 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

6 g of graphite is burnt in a bomb calorimeter at $25\ ^{\circ}\mathrm{C}$ and 1 atm pressure. The temperature of water increased from $25\ ^{\circ}\mathrm{C}$ to $31\ ^{\circ}\mathrm{C}$. If ΔH of this reaction is $-248\ \mathrm{kJ\ mol^{-1}}$, find out C_v (in $\mathrm{kJ\ K^{-1}}$) of bomb calorimeter.

(A) 20.667
(B) 41.33
(C) 1488
(D) 0.145

Answer: (A) 20.667 · Official APSCHE final key

Q192 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

At 300K, the equilibrium constant for a reaction is 10. The standard free energy change (in $\mathrm{kJ\ mol^{-1}}$) for the reaction is

(A) -57.4
(B) -115.2
(C) $+57.4$
(D) -5.74

Answer: (D) -5.74 · Official APSCHE final key

Q193 TS EAMCET 2018 · 7 May · Shift 1 MCQ

For the following process $H_2O_{(l)}$ (1 bar, 373.15K) $\rightleftharpoons$ $H_2O_{(g)}$ (1 bar, 373.15K) identify the correct set of thermodynamic parameters

(A) $\Delta G = 0$, $\Delta S = +$ve
(B) $\Delta G = 0$, $\Delta S = -$ve
(C) $\Delta G = +$ve, $\Delta S = 0$
(D) $\Delta G = -$ve, $\Delta S = +$ve

Answer: (A) $\Delta G = 0$, $\Delta S = +$ve · The council's preliminary key

Q194 TS EAMCET 2018 · 5 May · Shift 1 MCQ

The standard enthalpy of formation of $CO_{(g)}$, $CO_{2(g)}$, $N_2O_{(g)}$, and $N_2O_{4(g)}$ are respectively -10, -393, 81, and $-10\ \mathrm{kJ\ mol^{-1}}$. Enthalpy change (in kJ) of the following reaction is
$N_2O_{4(g)} + 3CO_{(g)} \longrightarrow N_2O_{(g)} + 3CO_{2(g)}$

(A) -1058
(B) $+1058$
(C) -957
(D) $+957$

Answer: (A) -1058 · The council's preliminary key

Q195 TS EAMCET 2018 · 5 May · Shift 2 MCQ

A sample of argon of $1\ \mathrm{atm}$ pressure and $300\ \mathrm{K}$ expands reversibly and adiabatically from $1.25\ \mathrm{dm^3}$ to $2.5\ \mathrm{dm^3}$. Calculate the approximate enthalpy (in J) change

[i) C_v for argon is $12.48\ \mathrm{JK^{-1}}$, ii) Assume argon to be an ideal gas, iii) $\Delta T = 111.5\ \mathrm{K}$]

(A) 20.9

(B) 117

(C) 234

(D) 58.5

Answer: (B) 117 · The council's preliminary key

Q196 TS EAMCET 2018 · 5 May · Shift 2 MCQ

If equilibrium constant of a process is 3.8×10^{-3} at $25\,^{\circ}\mathrm{C}$, standard free energy change of the process is
($R = 8.314\ \mathrm{J\,mol^{-1}\,K^{-1}}$, $\log 0.0038 = -2.42$)

(A) $5.7\ \mathrm{kJ\,mol^{-1}}$

(B) $9.9\ \mathrm{kJ\,mol^{-1}}$

(C) $13.8\ \mathrm{kJ\,mol^{-1}}$

(D) $15.6\ \mathrm{kJ\,mol^{-1}}$

Answer: (C) $13.8\ \mathrm{kJ\,mol^{-1}}$ · The council's preliminary key

Q197 TS EAMCET 2018 · 4 May · Shift 1 MCQ

At 298 K, the equilibrium constant of the process $1.5\,\mathrm{O_{2(g)}} \rightleftharpoons \mathrm{O_{3(g)}}$ is 3×10^{-29}. Standard free energy change (in $\mathrm{kJ\,mol^{-1}}$) of the process is approximately
($R = 8.314\ \mathrm{J\,mol^{-1}K^{-1}}$; $\log 3 = 0.47$)

(A) 724

(B) 612

(C) 247

(D) 163

Answer: (D) 163 · The council's preliminary key

Q198 TS EAMCET 2018 · 4 May · Shift 2 MCQ

Amongst the chemical reactions given below, the reactions with increasing entropy a
a) $\mathrm{H_2O_{(l)} \rightarrow H_2O_{(g)}}$
b) $\mathrm{C_{(s)} + CO_{2(g)} \rightarrow 2CO_{(g)}}$
c) $\mathrm{2H_{2(g)} + O_{2(g)} \rightarrow 2H_2O_{(l)}}$
d) $\mathrm{N_{2(g)} + O_{2(g)} \rightarrow}$ Mixture of $\mathrm{N_2}$ and $\mathrm{O_2}$

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

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

Q199 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

If 1.5 L of an ideal gas at a pressure of 20 atm expands isothermally and reversibly to a final volume of 15 L, the work done by the gas in L atm is

(A) 69.09
(B) 34.55
(C) -34.55
(D) -69.09

Answer: (A) 69.09 · Checked by our team

Q200 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

If the work done during the isothermal reversible expansion of an ideal gas at a pressure of 10 atm from 4L to a final volume is -184.24 L atm, the final volume of the gas in L is

(A) 40
(B) 400
(C) 8
(D) 80

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

Q201 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

At the temperature T(K) for the reaction $X_2O_{4(l)} \rightarrow 2XO_{2(g)}$ $\Delta U = x\ \text{kJ mol}^{-1}$, $\Delta S = y\ \text{JK}^{-1}\text{mol}^{-1}$. Gibbs energy change for the reaction is
(Assume X_2O_4, XO_2 are ideal gases)

(A) $1000x + 2R(T - y)\ \text{J mol}^{-1}$
(B) $1000x + T(2R - y)\ \text{J mol}^{-1}$
(C) $x + T(2R - y)\ \text{J mol}^{-1}$
(D) $x + 2R(T - y)\ \text{J mol}^{-1}$

Answer: (B) $1000x + T(2R - y)\ \text{J mol}^{-1}$ · The council's preliminary key

Q202 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

If enthalpy of combustion of carbon to $CO_{2(g)}$ is $-394.0\ \text{kJ mol}^{-1}$, the enthalpy change for the formation of 17.6 g of CO_2 from carbon and dioxygen at the same temperature in kJ is

(A) -157.6
(B) 315.2
(C) 157.6
(D) -315.2

Answer: (A) -157.6 · The council's preliminary key

Q203 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

From the following data
$\mathrm{CH_3OH_{(l)}} + \frac{3}{2}\mathrm{O_{2(g)}} \rightarrow \mathrm{CO_{2(g)}} + 2\mathrm{H_2O_{(l)}}$; $\Delta_r H^\circ = -726\ \mathrm{kJ\,mol^{-1}}$
$\mathrm{H_{2(g)}} + \frac{1}{2}\mathrm{O_{2(g)}} \rightarrow \mathrm{H_2O_{(l)}}$; $\Delta_r H^\circ = -286\ \mathrm{kJ\,mol^{-1}}$
$\mathrm{C_{(graphite)}} + \mathrm{O_{2(g)}} \rightarrow \mathrm{CO_{2(g)}}$; $\Delta_r H^\circ = -393\ \mathrm{kJ\,mol^{-1}}$
The standard enthalpy of formation of $\mathrm{CH_3OH_{(l)}}$ in $\mathrm{kJ\,mol^{-1}}$ is

(A) -239
(B) 239
(C) 547
(D) -905

Answer: (A) -239 · The council's preliminary key

Q204 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

Match the following
List I
A) At constant volume the change in internal energy of a system
B) Isothermal irreversible change
C) Isothermal reversible change
D) Adiabatic change
List II
I) $W = -2.303\,nRT\log\frac{V_f}{V_i}$
II) $W_{adia} = \Delta U$
III) $q_v = \Delta U$
IV) $W = -P_{ex}(V_f - V_i)$
V) $\Delta U = \Delta H - \Delta nRT$
The correct answer is

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

Answer: (C) A-III, B-IV, C-I, D-II · The council's preliminary key

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Q205 TS EAMCET 2017 · 12 May · Offline MCQ

Given ΔH_f° for $CO_{2(g)}$, $CO_{(g)}$ and $H_2O(g)$ are -393.5, -110.5 and $-241.8\ kJ\ mol^{-1}$, respectively. The ΔH_f° [in $kJ\ mol^{-1}$] for the reaction
$CO_2(g) + H_{2(g)} \rightarrow CO_{(g)} + H_2O(g)$ is

(A) 524.1
(B) -262.5
(C) -41.7
(D) 41.2

Answer: (D) 41.2 · The council's preliminary key

Q206 TS EAMCET 2017 · 12 May · Offline MCQ

Standard Enthalpy (Heat) of formation of liquid water at $25\ ^\circ C$ is around
$H_{2(g)} + \frac{1}{2}O_{2(g)} \rightarrow H_2O_{(l)}$

(A) -237 kJ/mol
(B) 237 kJ/mol
(C) -286 kJ/mol
(D) 286 kJ/mol

Answer: (C) -286 kJ/mol · The council's preliminary key

Q207 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

The enthalpy of formation ($\Delta_f H$) of methanol, formaldehyde and water are -239, -116 and $-286\ kJ\ mol^{-1}$ respectively. The enthalpy change for the oxidation of methanol to formaldehyde and water in kJ is

(A) -136
(B) -173
(C) -163
(D) 163

Answer: (C) -163 · The council's preliminary key

Q208 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

Which one of the following involves decrease in entropy ?

(A) $2NaHCO_{3(s)} \longrightarrow Na_2CO_{3(s)} + CO_{2(g)} + H_2O_{(g)}$
(B) $CCl_{4(s)} \longrightarrow CCl_{4(l)}$
(C) $Zn_{(s)} + 2HCl_{(aq)} \longrightarrow ZnCl_{2(aq)} + H_{2(g)}$
(D) $CaO_{(s)} + CO_{2(g)} \longrightarrow CaCO_{3(s)}$

Answer: (D) $CaO_{(s)} + CO_{2(g)} \longrightarrow CaCO_{3(s)}$ · The council's preliminary key

Q209 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

Assertion (A) : For every chemical reaction at equilibrium, standard Gibbs energy change of the reaction is zero
Reason (R) : At constant temperature and pressure chemical reactions are spontaneous in the direction of decreasing Gibbs energy.

(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 and (R) is not correct
(D) (A) is not correct but (R) is correct

Answer: (D) (A) is not correct but (R) is correct · The council's preliminary key

Q210 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

If standard enthalpy of formation ($\Delta_f H^\circ$) of CO_2, H_2O and CH_4 are -393, -286 and $-74.0\ \text{kJ mol}^{-1}$ respectively, the standard enthalpy of combustion of methane in kJ mol^{-1} is

(A) -753
(B) -105
(C) -605
(D) -891

Answer: (D) -891 · The council's preliminary key

Q211 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

Molar enthalpy change for vapourisation of 1.0 mol of water at 1.0 bar and 100°C is 41.0 kJ mol^{-1}. If water vapour is assumed to be an ideal gas, the internal energy change for 1.0 g of water in kJ is

(A) 1.053
(B) 4.212
(C) 3.159
(D) 2.106

Answer: (D) 2.106 · The council's preliminary key

Q212 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

A gas absorbs 100 J of heat and is simultaneously compressed by a constant external pressure of 1.5 atm from a volume of 8.0L to 2.0L. The change in internal energy for the gas in Joules is (1L - atm = 101.32 J)

(A) -1011.9
(B) -909.9
(C) $+909.9$
(D) 1011.9

Answer: (D) 1011.9 · The council's preliminary key

Q213 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

Assertion (A) : If heat of combustion of C_2H_6 is 'X' kJ mol^{-1}, heat liberated on combustion of 150 g C_2H_6 is $\frac{X}{5}$ kJ.
Reason (R) : Enthalpy is an extensive property

(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, (R) is not correct
(D) (A) is not correct but (R) is correct

Answer: (D) (A) is not correct but (R) is correct · The council's preliminary key

Q214 TS EAMCET 2016 · 15 May · Offline MCQ

Given that $N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$; $\Delta_r H^{\ominus} = -92$ kJ, the standard molar enthalpy of formation in kJ mol^{-1} of $NH_3(g)$ is

(A) -92
(B) $+46$
(C) $+92$
(D) -46

Answer: (D) -46 · Official TGCHE final key

Q215 AP EAMCET 2016 · 29 Apr · Offline MCQ

Given that
$C_{(s)} + O_{2(g)} \rightarrow CO_{2(g)}$; $\Delta H^{\circ} = -x$ kJ
$2CO_{(g)} + O_{2(g)} \rightarrow 2CO_{2(g)}$; $\Delta H^{\circ} = -y$ kJ
The enthalpy of formation of CO will be

(A) $\frac{y-2x}{3}$
(B) $\frac{y-2x}{2}$
(C) $\frac{2x-y}{2}$
(D) $\frac{x-y}{2}$

Answer: (B) $\frac{y-2x}{2}$ · The council's preliminary key

Q216 AP EAMCET 2014 · 22 May · Offline MCQ

The temperature in K at which $\Delta G = 0$, for a given reaction with $\Delta H = -20.5\ \text{kJ mol}^{-1}$ and $\Delta S = -50.0\ \text{JK}^{-1}\ \text{mol}^{-1}$ is

(A) -410
(B) 410
(C) 2.44
(D) -2.44

Answer: (B) 410 · The council's preliminary key

Q217 AP EAMCET 2013 · 10 May · Offline MCQ

For which one of the following reactions, the entropy change is positive ?

(A) $\underset{(g)}{\text{H}_2} + \frac{1}{2}\underset{(g)}{\text{O}_2} \rightarrow \underset{(\ell)}{\text{H}_2\text{O}}$
(B) $\underset{(g)}{\text{Na}^+} + \underset{(g)}{\text{Cl}^-} \rightarrow \underset{(s)}{\text{NaCl}}$
(C) $\underset{(\ell)}{\text{NaCl}} \rightarrow \underset{(s)}{\text{NaCl}}$
(D) $\underset{(\ell)}{\text{H}_2\text{O}} \rightarrow \underset{(g)}{\text{H}_2\text{O}}$

Answer: (D) $\underset{(\ell)}{\text{H}_2\text{O}} \rightarrow \underset{(g)}{\text{H}_2\text{O}}$ · The council's preliminary key

Q218 AP EAMCET 2012 · 12 May · Offline MCQ

The molar heat capacity (C_p) of water at constant pressure is 75 $\text{J.K}^{-1}\text{.mol}^{-1}$. The increase in temperature (in K) of 100 g of water when 1 k.J. of heat is supplied to it is

(A) 2.4
(B) 0.24
(C) 1.3
(D) 0.13

Answer: (A) 2.4 · Official APSCHE final key

Q219 AP EAMCET 2011 · 8 May · Offline MCQ

Which one of the following pairs represents the intensive properties ?

(A) Specific heat and temperature
(B) Entropy and density
(C) Enthalpy and mole fraction
(D) Heat and temperature

Answer: (A) Specific heat and temperature · The council's preliminary key

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Q220 AP EAMCET 2010 · 30 May · Offline MCQ

A system is provided with 50 Joules of heat and the work done on the system is 10 Joules. What is the change in internal energy of the system in Joules ?

(A) 60
(B) 40
(C) 50
(D) 10

Answer: (A) 60 · Official APSCHE final key

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