GENERAL CHEMISTRY I/ جميع الشعب

Question **10**

Not yet answered

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Flag question

Calculate the standard enthalpy of formation of $PCl_5(g)$ in kJ/mol

$1/2\ P_4(s) + 5\ Cl_2(g) \rightarrow 2\ PCl_5(g) \qquad \Delta H = -749.8\ kJ$

Note: most stable form of P element is $P_4(s)$.

Select one:

- a. -150.0
- b. -187.3
- c. -729.8
- d. 0.0
- e. -374.9

Finish attempt ...

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What is the enthalpy (in kJ) of the following reaction at constant pressure?

$C_4H_8(g) + H_2O(g) \rightarrow C_4H_{10}O(g)$

Use the following thermochemical equations:

$4C(s) + 4H_2(g) \rightarrow C_4H_8(g)$ $\Delta H = -7.1$ kJ

$4C(s) + 5H_2(g) + \frac{1}{2}O_2(g) \rightarrow C_4H_{10}O(g)$ $\Delta H = -292.8$ kJ

$2H_2(g) + O_2(g) \rightarrow 2H_2O(g)$ $\Delta H = -483.6$ kJ

Select one:

- a. -783.5
- b. +197.9
- c. -183.7
- d. -527.5
- e. -43.9

ENERAL CHEMISTRY I/ جميع الشعب

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Calculate the rms speed (in m/s) of He (molar mass = 4.0 g/mol) molecules in a cylinder at 27 °C and 8.7 atm.

R = 0.082 atm.L/mol.K or 8.314 $kg \cdot m^2/s^2 \cdot K \cdot mol$

Select one:

- a. 42.8
- b. 12.8
- c. 136.0
- d. 1367.7
- e. 406.0

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GENERAL CHEMISTRY I/ جميع الشعب

Question 2

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Flag question

The volume of certain amount of nitrogen at 23°C and 746 mmHg is 10.1 cm^3. What is the volume of nitrogen at 20 °C and 790 mmHg ?

Select one:

- a. 9.44
- b. 8.29
- c. 10.8
- d. 12.3
- e. 0.935

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GENERAL CHEMISTRY I/ جميع الشعب

Question **5**

Not yet answered

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Flag question

Use the following to calculate the mass of $CO_2(g)$ would be obtained if the reaction released 369 kJ of heat. Molar mass of CO_2 = 44.0 g/mol

$C_3H_8(g) + 5\ O_2(g) \rightarrow 3\ CO_2(g) + 4\ H_2O(g)$ $\Delta H = -2043$ kJ

Select one:

- a. 244 g
- b. 44.0 g
- c. 23.8 g
- d. 7.95 g
- e. 2.65 g

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GENERAL CHEMISTRY I/ جميع الشعب

Question 10

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Flag question

How many milliliters of 0.165 M aluminum chloride ($AlCl_3$) are required to react completely with 35.0 mL of 0.210 M silver nitrate ($AgNO_3$)? The net ionic equation is:

$Ag^+(aq) + Cl^-(aq) \longrightarrow AgCl(s)$

Select one:

- 19.1 mL
- 27.6 mL
- 14.8 mL
- 31.8 mL
- 23.3 mL

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GENERAL CHEMISTRY I/ جميع الشعب

Question 23

Not yet answered

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Flag question

What is the potential energy value (in kJ/mol) obtained via combining Rb^+ ions and Br^- ions to form ionic bonds?

$k = 8.99 \times 10^9\ J.m/C^2$ $e = 1.6 \times 10^{-19}\ C$

Avogadro No. $= 6.022 \times 10^{23}$

The distance between ions = 0.250 nm

Select one:

- 513
- 693
- 554
- 462
- 396

GENERAL CHEMISTRY I/ جميع الشعب

Question 1

Not yet answered

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Flag question

In a constant volume calorimeter, a 0.977 g of pentane (C_5H_{12}) are burned, the calorimeter temperature rises from 25.00 °C to 27.29 °C. The heat capacity of the calorimeter and its contents was 20.7 kJ/ °C.

What is the enthalpy of combustion for one mole of pentane? Molar mass of C_5H_{12} = 72.15 g/mol

Select one:

- a. - 3501.0
- b. - 4.000×10^4
- c. - 0.6414
- d. - 47.40
- e. - 564.9

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GENERAL CHEMISTRY I/ جميع الشعب

Question **6**

Not yet answered

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Flag question

A 0.590 gram of volatile liquid was vaporized at 96 °C and expanded in 200 ml flask at 800 mmHg. Calculate the molar mass of this liquid in g/mol.

R = 0.082 atm.L/mol.K or 8.314 $kg \cdot m^2/s^2 \cdot K \cdot mol$

Select one:

- a. 84.9
- b. 78.1
- c. 60.7
- d. 68.1
- e. 73.0

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GENERAL CHEMISTRY I/ جميع الشعب

Question 9

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Flag question

Calculate the change in internal energy (kJ/mol) when 4 moles of $NH_3(g)$ are converted to 4 moles of $NO(g)$ at 1 atm, and 25°C.

$4NH_3(g) + 5O_2(g) \rightarrow 4NO(g) + 6H_2O(g)$ $\Delta H = -906$ kJ/mol

R= 0.0821 Latm/mol.K or 8.314 J/K mol

Select one:

- - 908.48
- - 909.31
- - 910.97
- - 910.14
- - 911.80

If 954.0 mL of nitrogen gas, measured at 488.9 mmHg and 22.3°C, reacts with excess iodine according to the following reaction, what mass of nitrogen triiodide (molar mass= 394.72) is produced? (1 atm= 760 mmHg and K= °C + 273)

$$N_2(g) + 3I_2(s) \rightarrow 2NI_3(s)$$

Select one:

- a. 13.30 g
- b. 4.33 g
- c. 6.65 g
- d. 20.0 g
- e. 3.33 g

Which of the following gases has the greatest density at 2.5 atm and 25°C? (Molar masses for C= 12.0, H= 1.01, N= 14.0, O= 16.0, S=32.1, and F= 19.0 g/mol)

Select one:

- a. NF_3
- b. C_6H_{14}
- c. C_7H_8
- d. N_2O
- e. CS_2

When 27.6 mL of 0.870 *M* lead(II) nitrate reacts with 90.0 mL of 0.777 *M* sodium chloride, 0.279 kJ of heat is released at constant pressure. What is ΔH^{o} for this reaction?

$$Pb(NO_3)_2(aq) + 2NaCl(aq) \rightarrow PbCl_2(s) + 2NaNO_3(aq)$$

Select one:

- a. 69.7 kJ
- b. 11.6 kJ
- c. 17.4 kJ
- d. −11.6 kJ
- e. −69.7 kJ

GENERAL CHEMISTRY I/ جميع الشعب

Question 24
Not yet answered
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Flag question

The average speed of nitrogen gas (N_2, 28 g/mol) that effuses at 30.0 °C is 700 m/s. The average speed at which butene gas (C_4H_8, 56 g/mol) effuses at the same temperature is:

Select one

- 396 m/s
- 481 m/s
- 339 m/s
- 495 m/s
- 354 m/s

When 27.6 mL of 0.870 *M* lead(II) nitrate reacts with 90.0 mL of 0.777 *M* sodium chloride, 0.279 kJ of heat is released at constant pressure. What is ΔH° for this reaction?

$$Pb(NO_3)_2(aq) + 2NaCl(aq) \rightarrow PbCl_2(s) + 2NaNO_3(aq)$$

Select one:

- a. 69.7 kJ
- b. 11.6 kJ
- c. 17.4 kJ
- d. -11.6 kJ
- e. -69.7 kJ

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What is the standard enthalpy of formation of liquid *n*-butanol, $CH_3CH_2CH_2CH_2OH$?

$$CH_3CH_2CH_2CH_2OH(l) + 6O_2(g) \rightarrow 4CO_2(g) + 5H_2O(l) \qquad \Delta H^\circ = -2675 \text{ kJ}$$

Substance	ΔH°_f (kJ/mol)
$CO_2(g)$	−393.5
$H_2O(l)$	−285.8

Select one:

- a. -528 kJ
- b. -328 kJ
- c. -428 kJ
- d. -753 kJ
- e. -603 kJ

What is the specific heat (in J/g °C) of a metal if it takes 465 J to raise the temperature of a 50.0 g sample of the element by 5.00 °C?

(a) 0.444

(b) 1.86

(c) 1.07

(d) 2.22

(e) 0.333

13/
20

Which one of the following substances is a strong electrolyte?

a) NH_3

b) CH_3OH

c) $LiOH$

d) $C_6H_{12}O_6$

e) CH_3COOH

Consider the following reaction:

$$2\,Ca + O_2 \rightarrow 2\,CaO$$

The reducing agent in this reaction is:

(a) Ca

(b) O_2

(c) CaO

(d) O^{2-}

(e) Ca^{2+}

Consider the following reaction:

$$BaCl_2(aq) + ZnSO_4(aq) \rightarrow$$

The correct net ionic equation is:

(a) $Ba^{2+} + 2\,Cl^- \rightarrow BaCl_2$

(b) $Ba^{2+} + SO_4^{2-} \rightarrow BaSO_4$

(c) $Zn^{2+} + SO_4^{2-} \rightarrow ZnSO_4$

(d) $Zn^{2+} + 2\,Cl^- \rightarrow ZnCl_2$

(e) $2\,H^+ + SO_4^{2-} \rightarrow H_2SO_4$

Given the following bond energies:

Bond	Bond Energy (kJ/mol)
Br–Br	183
C=C	837
C–C	347
C–Br	276
C–H	414

Calculate ΔH° for the reaction:

$$2\,Br_2(l) + C_2H_2(g) \rightarrow C_2H_2Br_4(l)$$

(a)–228 kJ/mol
(b)–248 kJ/mol
(c)–268 kJ/mol
(d)–288 kJ/mol
(e)–308 kJ/mol

Which one of the following substances is a strong electrolyte?

a) NH_3

b) CH_3OH

c) LiOH

d) $C_6H_{12}O_6$

e) CH_3COOH

Given the following thermochemical equations:

$2\ HCl(g) \rightarrow H_2(g) + Cl_2(g)$ $\Delta H^\circ = +184.6$ kJ/mol

$2\ H_2(g) + \frac{1}{2}\ N_2(g) + \frac{1}{2}\ Cl_2(g) \rightarrow NH_4Cl(s)$ $\Delta H^\circ = -314.4$ kJ/mol

$N_2(g) + 3\ H_2(g) \rightarrow 2\ NH_3(g)$ $\Delta H^\circ = -46.2$ kJ/mol

Calculate the standard enthalpy change, ΔH°, (in kJ/mol) of the reaction:

$$NH_3(g) + HCl(g) \rightarrow NH_4Cl(s)$$

(a) −176

(b) −199

(c) −222

(d) −107

(e) −60.7

Given the following standard enthalpies of formation: $\Delta H^\circ_f[CO_2(g)] = -393.5$ kJ/mol, $\Delta H^\circ_f[CH_4(g)] = -483.5$ kJ/mol and $\Delta H^\circ_f[H_2O(g)] = -241.8$ kJ/mol. Calculate the heat released (in kJ) for the reaction of one mole of O_2 according to this reaction:

$$CH_4(g) + 2\,O_2(g) \rightarrow CO_2(g) + 2\,H_2O(g)$$

(a) −271.8
(b) −246.8
(c) −231.8
(d) −216.8
(e) −196.8

mL of $AgNO_3$ solution 40.0 ($AgNO_3$ = 169.9 g/ mol) of unknown concentration was found to give 1.50 grams of AgCl (143.4 g/mol) upon addition of excess sodium chloride. What is the molarity ?of the original $AgNO_3$ solution

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a. 0.174

b. 0.209

c. 0.523

d. 0.349

e. 0.262

Flag question

How many grams Na (23.0 g/ mol) are present in 5.00 mL of 0.10 M solution Na_2SO_4 (142.1 g/ mol) ?

Select one:

- a. 0.032
- b. 0.051
- c. 0.023
- d. 0.060
- e. 0.041

What is the total number of electrons involved in the following oxidation-reduction reaction?

$Mg\,(s) + HCl\,(aq) \rightarrow MgCl_2(aq) + H_2\,(g)$

(Not balanced)

Select one:

- a. 10
- b. 8
- c. 2
- d. 4
- e. 6

Clear my choice

How many grams of NaOH (molar mass = 40.0 g/ mol) are required to prepare 300.0 mL of 0.150 M solution?

Select one:

- a. **0.60**
- b. **1.80**
- c. **1.20**
- d. **2.40**
- e. **3.00**

ENERAL CHEMISTRY I/ جميع الشعب

Question 9

Not yet answered

Marked out of 1.67

Flag question

Which of the following pairs is: strong acid / weak base ?

Select one:

a.
$HC_2H_3O_2$ / KOH

b.
HCl / NH_3

c.
HCN / NaOH

d.
HNO_3 / $Sr(OH)_2$

e.
HBr / $Ca(OH)_2$

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Emoji brush

Eraser

What is the oxidation number of Mn in MnO_4^- ?

Arrow brush

Select one:

- a. +3
- b. +4
- c. +7
- d. +6
- e. +5

GENERAL CHEMISTRY I/ جميع الشعب

Question 6

Not yet answered

Marked out of 1.67

Flag question

30.0 mL of $AgNO_3$ solution ($AgNO_3$ = 169.9 g/ mol) of unknown concentration was found to give 1.50 grams of AgCl (143.4 g/mol) upon addition of excess sodium chloride. What is the molarity of the original $AgNO_3$ solution?

Select one:

- a. **0.209**
- b. **0.174**
- c. **0.349**
- d. **0.523**
- e. **0.262**

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Previous page

How many moles of NH_3 will be produced from the reaction of 0.40 mol N_2 with 1.0 mol of H_2 according to the following equation?

$$N_2 + 3H_2 \rightarrow 2NH_3$$

Select one:

- a. 0.67
- b. 0.80
- c. 1.0
- d. 1.67
- e. 1.33

Question 8

Not yet answered

Marked out of 1.63

Flag question

What is the oxidation number of Br in BrO_4^-?

Select one:

- a. +6
- b. +4
- c. +5
- d. +3
- e. +7

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Question **15**

Not yet answered

Marked out of 1.00

Flag question

30 mL of 0.10 M NaOH is required to neutralize 10 mL of H3PO4. What is the molarity of the H3PO4 ?

Select one:

- a. 0.3 M
- b. 0.9 M
- c. 0.1 M
- d. 0,15 M
- e. none of the above

A 280 ml sample of a 0.275 M solution of nonvolatile solute is left on a hot plate over night , the next day, the solution has 1.10 M. What is the volume of the solvent that has been evaporated from the original solution?

Select one:

- a. 58.0 ml
- b. 77.0 ml
- c. 172 ml
- d. 210 ml
- e. more information are needed since the solute may also evaporate

What is the potential energy value (in kJ/mol) obtained via combining K^+ ions and F^- ions to form ionic bonds?

$k = 8.99 \times 10^9$ J.m/C^2 $e = 1.6 \times 10^{-19}$ C

Avogadro No. = 6.022×10^{23}

The distance between ions = 0.200 nm

Select one:

- 396
- 513
- 462
- 554
- 693

How many milliliters of 0.165 M aluminum chloride ($AlCl_3$) are required to react completely with 35.0 mL of 0.210 M silver nitrate ($AgNO_3$)? The net ionic equation is:

$Ag^+(aq) + Cl^-(aq) \longrightarrow AgCl(s)$

Select one:

- 19.1 mL
- 27.6 mL
- 14.8 mL
- 31.8 mL
- 23.3 mL

How many grams of $NiSO_4.7H_2O$ (280.86 g/mol) would be required to prepare 600 mL of a solution that is 0.300 M in $NiSO_4(aq)$ (154.76 g/mol)?

Select one:

- 84.3 g
- 67.4 g
- 50.6 g
- 59.0 g
- 42.1 g

The average speed of nitrogen gas (N_2, 28 g/mol) that effuses at 30.0 °C is 680 m/s. The average speed at which butene gas (C_4H_8, 56 g/mol) effuses at the same temperature is:

Select one:

- 339 m/s
- 354 m/s
- 495 m/s
- 481 m/s
- 396 m/s

Calculate the change in internal energy (kJ/mol) when 4 moles of $NH_3(g)$ are converted to 4 moles of $NO(g)$ at 4 atm. and 325°C.

$4NH_3(g) + 5O_2(g) \dashrightarrow 4NO(g) + 6H_2O(g)$ $\Delta H = -906$ kJ/mol

R= 0.0821 L.atm/mol.K or 8.314 J/K·mol

Select one:

- O - 911.80
- O - 909.31
- O - 910.97
- O - 910.14
- O - 908.48