لجنة اسألني عن الهندسة
تقدم لكم

حلول اسئلة سنوات

كيمياء ١.١

NERAL CHEMISTRY I/ جميع الشعب

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The concentration of calcium in seawater sample was found to be 19000 mg/L. What is the percent concentration by mass of calcium in the sample assuming a density for seawater of 1.06 g/mL?

Select one:

- 0.230 %
- 0.905 %
- 0.0328 %
- 1.64 %
- 1.79 %

Question 2

Not yet answered

Marked out of 2.0

Flag question

How can Te acquire a noble gas electron configuration?

Select one:

- By losing one electron
- By losing two electrons
- By gaining one electron
- By gaining two electrons
- By losing three electrons

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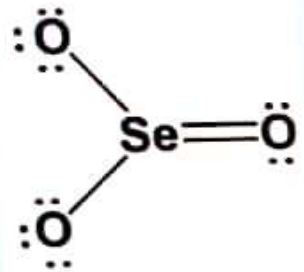
What formal charges are there on the following Lewis structure of SeO_3?



Select one:

- Se has +1, each O atom has 0
- Se has +1, two O atoms has -1 and one O atom has 0
- Se has +2, two O atoms has -1 and one O atom has 0
- Se has +2, one O atom has -2
- Se has 0, one O atom has +1

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GENERAL CHEMISTRY I/ جميع الشعب

Question **4**

Not yet answered

Marked out of 2.0

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 5 atm. and 425°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:

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

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Question 5

Not yet answered

Marked out of 2.0

Flag question

How many electrons are there in the valence shell of Be in $BeCl_2$?

Select one:

- 6
- 10
- 4
- 12
- 14

Q1: concentration C = 19000 mg/L => 19 g/L

density seawater = 1.06 g/mL → 1060 g/L

percent concentration = $\frac{19\ g/L}{1060\ g/L} \times 100\% = 1.79\ \%$

Q2: ~~By~~ anwser: By gaining Two electrons

$Te \rightarrow [Xe]$

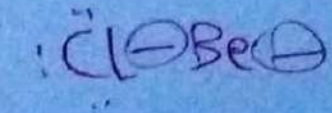
Q3: anwser: Se has +2, two O atoms has -1 and one O atom has 0

* none of the anwsers is correct as Se actually has 0 charge

Q4: $\Delta U = \Delta H - RT\Delta n = -906 + 8.314 \times (273+25)(1-0) \times \frac{1}{1000}$

$= -911.80$

Q5: anwser: 4



GENERAL CHEMISTRY I/ جميع الشعب

Question 6

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 480 m/s. The average speed at which butene gas (C_4H_8, 56 g/mol) effuses at the same temperature is:

Select one:

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

GENERAL CHEMISTRY I/ جميع الشعب

Question 7

Not yet answered

Marked out of 2.0

Flag question

Which one of the following solids have the largest melting point ?

Select one:

- RbI
- NaBr
- SrO
- CsCl
- KCl

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GENERAL CHEMISTRY I/ جميع الشعب

Question 8

Not yet answered

Marked out of 2.0

Flag question

Which of the following atoms or ions are isoelectronic ?

Select one:

- K^+ and Cl
- Ca^{2+} and Mg^{2+}
- N^{3-} and F
- Li^+ and Be^{2+}
- Be^{2+} and B

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GENERAL CHEMISTRY I/ جميع الشعب

Question 9

Not yet answered

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Flag question

Which of the following pair of elements would most likely form an ionic compound?

Select one:

- Ga and Mg
- Br and O
- Cl and I
- C and S
- Br and Rb

ENERAL CHEMISTRY I/ جميع الشعب

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Lithium (Li) reacts with water according to the following **unbalanced equation:**

$Li(s) + H_2O(l) \rightarrow LiOH(aq) + H_2(g)$

How many grams of Li are needed to produce 59.8g of H_2? (molar mass: H = 1.01, Li = 6.94 g/mol)

Select one:

- 411
- 273
- 136
- 342
- 205

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Q 6: answer: 339 m/s

$$\frac{R_{C_4H_8}}{R_{H_2}} = \sqrt{\frac{28}{56}} = 0.71$$ | speed $_{C_4H_8} = 0.71 \times 480$

$= \underline{339 \text{ m/s}}$

Q 7: anwser is SrO

Q 8: anwser is: Li^+ and Be^{2+}

Li: $[He]\,2s^1 \rightarrow Li^+: [He]$

Be: $[He]\,2s^2 \rightarrow Be^{2+}: [He]$

Q 9: anwser is: Br and Rb

$Rb^+ + Br^- \rightarrow RbBr$

Q 10: $2Li + 2H_2O \rightarrow 2LiOH + H_2$

moles $H_2 = \frac{59}{2.02} = 29.6$ moles

$\frac{Li}{H_2} = \frac{2}{1} \Rightarrow$ mole $Li = 2$ mole H_2

~~mole Li = 0.5 × 29.6 = 14.8~~

grams $Li = 2 \times 29.6 \times 6.94 = \underline{411}$

GENERAL CHEMISTRY I/ جميع الشعب

Question 11

Not yet answered

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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:

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

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GENERAL CHEMISTRY I/ جميع الشعب

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In which of the following bonds would Br have a partial positive charge?

Select one:

- Br-Se
- Br-Ge
- Br-As
- Br-Cl
- Br-I

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Which one of the following electron configurations is considered a pseudo-Nobel gas configuration ?

Select one:

- $[Kr]5s^2 4d^7$
- $[Rn]5f^3 7s^2 6d^1$
- $[Xe]4f^{14} 6s^2 5d^5$
- $[Rn]5f^{14}$
- $[Ar]3d^{10} 4s^2 4p^2$

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Question 16

Not yet answered

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Flag question

What is the potential energy value (in kJ/mol) obtained via combining Cs^+ 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 = 0.350 nm

Select one:

- 462
- 554
- 513
- 396
- 693

Question 15

Not yet answered

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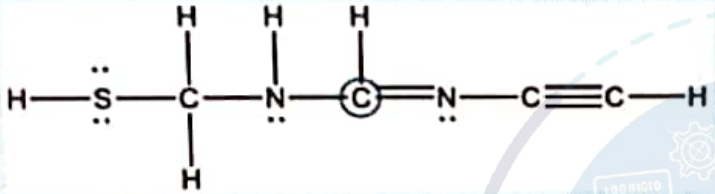
Flag question

Based on VSEPR, what is the expected geometry around the circled atom in the following compound?



Select one:

- Trigonal planar
- Bent
- Linear
- Tetrahedral
- Trigonal pyramidal

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Question 13

Not yet answered

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Flag question

The bond angles in SbI_5 are expected to be:

Select one:

- 180 °
- 90 °, 120 °, and 180 °
- 90 ° and 109.5 °
- 90 °
- 120 °

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1 2 3 4

9 10 11 12

17 18 19 20

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Q11: $3AgNO_3 + AlCl_3 \rightarrow 3AgCl + Al(NO_3)_3$

moles $AgNO_3 = M \times V = 35 \times 10^{-3} \times 0.21$

$= 7.35 \times 10^{-3}$

$\frac{\text{moles } AlCl_3}{\text{moles } AgNO_3} = \frac{1}{3} \Rightarrow$ moles $AlCl_3 = \frac{7.35 \times 10^{-3}}{3} = 2.45 \times 10^{-3}$

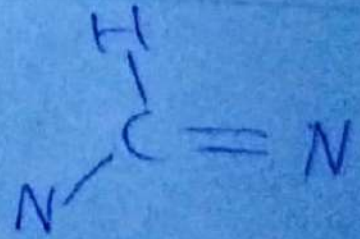
Liters $AlCl_3 = \frac{n}{V} = \frac{2.45 \times 10^{-3}}{0.165} =$ 14.8 mL

Q12: answer is: Br − Cl

Q14: $E = \frac{kQ_1Q_2}{r} = \frac{9 \times 10^9 \times 1.6 \times 10^{-19} \times 1.6 \times 10^{-19}}{0.35 \times 10^{-9}} = 6.583 \times 10^{-19}$

Energy per mole $= 6.58 \times 10^{-19} \times 6.022 \times 10^{23} =$ 396 KJ

Q15: Trigonal Planer



Q16: 90°

2

Q13: answer is $[Rn]5f^{14}$

GENERAL CHEMISTRY I/ جميع الشعب

Question 12

Not yet answered

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Flag question

What is the maximum number of electrons that can be placed in a shell with n = 2 ?

Select one:

- 10
- 2
- 6
- 8
- 14

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Which one of the following elements is expected to have the highest electronegativety ?

Select one:

- Element (q): I.E = 4.0×10^3 kJ/mol and E.A = 2.0×10^3 kJ/mol
- Element (t) : I.E = 4.0×10^3 kJ/mol and E.A = 2.5×10^3 kJ/mol
- Element (z): I.E = 1.0×10^3 kJ/mol and E.A = 3.0×10^3 kJ/mol
- Element (y): I.E = 5.0×10^3 kJ/mol and E.A = 1.0×10^3 kJ/mol
- Element (x): I.E = 2.5×10^3 kJ/mol and E.A = 2.5×10^3 kJ/mol

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I.E: $y > q, t > x > z$

E.A: $z > t, x > q > y$

larger electronegativity → larger I.E → larger E.A

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Which of the following atoms is the most difficult to ionize?

Select one:

- Ne
- He
- F
- C
- O

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Ne

Question 20

Not yet answered

Marked out of 2.0

Flag question

Which one of the following statements is incorrect regarding electron affinity ?

Select one:

- In a given period, the electron affinity rises from the group 1A element to the group 7A element but with sharp drops in the group 2A and group 5A elements.
- Electron affinity is defined as the energy required to remove an electron from the atom's negative ion (in its ground state)
- Nobel gases have zero or small negative electron affinity values.
- The element with highest electron affinity in the periodic table is chlorine.
- Group 6A and group 7A elements have the smallest electron affinities of any of the other main-group elements

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Question 21

Not yet answered

Marked out of 2.0

Flag question

Which one of the following sets of quantum numbers is not possible?

Select one:

- n= 2, l= 1, ml= 1
- n= 1, l= 1, ml= -1
- n= 3, l= 2, ml= -2
- n= 2, l= 1, ml= -1
- n= 1, l= 0, ml= 0

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Ne

Question 22

Not yet answered

Marked out of 2.0

Flag question

How many grams of $NiSO_4.7H_2O$ (280.86 g/mol) would be required to prepare 1000 mL of a solution that is 0.300 M in $NiSO_4(aq)$ (154.76 g/mol)?

Select one:

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

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Q17: 10

$1s^2\ 2s^2\ 2p^6$

Q18:

Q19: He

Q20: Electron Affinity is defined as the energy required to remove an electron from the atom's negative ion

Q21: n = 1, l = 1, ml = -1

Q22: $M = \frac{n}{V} \Rightarrow n = M \cdot V$

$n_{NiSO_4} = 0.3 \times 1 = 0.3$

grams $NiSO_4 = 0.3 \times 154.76 = 46.428\ g$

- $\frac{\text{moles } NiSO_4}{\text{moles } NiSO_4 \cdot 7H_2O} = \frac{154.76}{280.86} = 0.551$

grams $NiSO_4 \cdot 7H_2O = \frac{1}{0.551} \times 46.428 = 84.3\ g$

Question 23

Not yet answered

Marked out of 2.0

Flag question

Which of the following ionic compounds does not exist ?

Select one:

- SrO
- BaI_2
- RbBr
- CsI
- CsO

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Question 24

Not yet answered

Marked out of 2.0

Flag question

Which of the following O-bonds is most polar?

Select one:

- O-B
- O-C
- O-O
- O-F
- O-N

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Question 25

Not yet answered

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Flag question

Which of the following atoms is smallest in size?

Select one:

- F
- B
- C
- Be
- O

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Which of the following atoms is the most difficult to ionize?

Select one:

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- C
- O

revious page

Ne

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Not yet answered

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- N^{3-} and F
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Avogadro No. = 6.022×10^{23}

The distance between ions = 0.350 nm

Select one:

- 462
- 554
- 513
- 396
- 693

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Question 18

Not yet answered

Marked out of 2.0

Flag question

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Select one:

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- Element (z): I.E = 1.0×10^3 kJ/mol and E.A = 3.0×10^3 kJ/mol
- Element (y): I.E = 5.0×10^3 kJ/mol and E.A = 1.0×10^3 kJ/mol
- Element (x): I.E = 2.5×10^3 kJ/mol and E.A = 2.5×10^3 kJ/mol

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Question 20

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Question 13

Not yet answered

Marked out of 2.0

Flag question

The bond angles in SbI_5 are expected to be:

Select one:

- 180 °
- 90 °, 120 °, and 180 °
- 90 ° and 109.5 °
- 90 °
- 120 °

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Question 24

Answer saved

Marked out of 2.0

Flag question

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Select one:

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- O-F
- O-N

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Question 16

Not yet answered

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

The distance between ions = 0.350 nm

Select one:

- 462
- 554
- 513
- 396
- 693

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Q23: answer: Cs_2O

Q24: answer: D - E

Q25: answer: C

Q26: answer: He

Q27: answer is: Li^+ and Be^{+2}

Q28: $E_{\text{per atom}} = K\frac{q_1 q_2}{r} = \frac{9\times10^{9}\times1.6\times10^{-19}\times1.6\times10^{-19}}{0.39\times10^{-9}}$

$= 6.583\times10^{-19}$

E per mole $= 6.583\times10^{-19}\times 6.022\times10^{23} = 396\ KJ$

Q29: answer is: electron affinity is defined as the energy required to remove.....

Q30:

Q29:

Q31: answer: 90°

Q32: answer: D-B

Q33: answer: 396