

Keys:

1 : (c)	13:(b)	25: (b)	37: (d)	49: (a)
2 : (c)	14:(b)	26: (b)	38: (c)	50: (b)
3: (d)	15: (d)	27: (b)	39: (a)	51: (a)
4: (a)	16:(c)	28: (a)	40: (b)	52: (b)
5: (c)	17:(c)	29: (d)	41: (c)	53: (b)
6: (b)	18: (b)	30: (a)	42: (b)	54: (c)
7:(b)	19: (c)	31: (c)	43: (c)	55: (c)
8:(c)	20: (b)	32: (a)	44: (a)	56: (c)
9:(c)	21: (c)	33: (a)	45: (d)	57: (a)
10: (d)	22: (a)	34: (b)	46: (d)	58: (b)
11:(b)	23: (d)	35: (c)	47: (b)	59: (c)
12:(c)	24: (a)	36: (c)	48: (b)	60: (d)

Working Sheet

7. b.

Explanation:

$$n_{\text{O}_2} = x / 32 \quad n_{\text{CH}_4} = x / 16$$

$$n_{\text{O}_2} + n_{\text{CH}_4} = 3x / 32$$

$$P_{\text{O}_2} = n_{\text{O}_2} / n_{\text{O}_2} + n_{\text{CH}_4} \times \text{total P}$$

$$= x / 32 \times 32 / 32 / 3x$$

$$= 1 / 3 \text{ of the total P}$$

8. c.

Explanation:

$$T \Delta S = \Delta H$$

$$\Delta S = \Delta H / T$$

$$= 40.7 \times 10^3 / 373$$

$$= 109 \text{ J mol}^{-1} \text{ K}^{-1}$$

10. d.

Explanation:

$$\begin{aligned}\text{Magnetic moment} &= \sqrt{n \times (n + 2)} = \sqrt{4(4 + 2)} \\ &= \sqrt{32} \\ &= 3.87\end{aligned}$$

12. c.

Explanation:

$$\begin{aligned}K &= A e^{-E_a / RT} \\ \log K / A &= - E_a / 2.303 RT \\ &= - 2.303 RT / 2.303 RT \\ &= - 1\end{aligned}$$

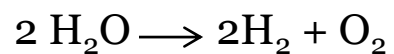
Therefore $K / A = \text{antilog}(-1)$

$$\begin{aligned}&= 10^{-1} = 1 / 10 \\ &= 0.01\end{aligned}$$

16. c.

Explanation:

90 g of water is 5 moles



2 moles of H_2O liberates 1 moles of O_2

Therefore 5 moles = $1 \times 5 / 2$

No. of moles of $\text{O}_2 = 2.5$ moles

17. c.

Explanation:

$$\Pi = CRT$$

$$C_1 = 3 / 60 = 0.05$$

$$C_2 = 9 / 180 = 0.05$$

$$C_1 = C_2$$

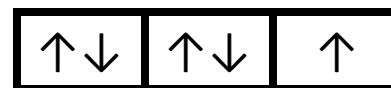
Therefore $\Pi_1 = \Pi_2$

19. c.

Explanation:

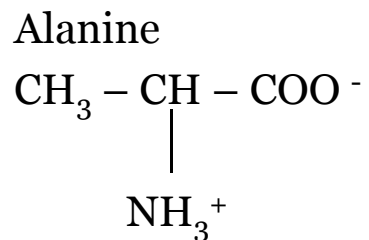
Cl - 17

1 S2 2 S2 2 P6 3S2 3P5



21. c.

Explanation:



25. b.

Explanation:

$$\begin{aligned} \text{pH} = 6 & \quad [\text{H}^+] = 10^{-6} \\ \text{pH} = 3 & \quad [\text{H}^+] = 10^{-3} \\ \text{Changing in } [\text{H}^+] & = 10^{-3} / 10^{-6} \\ & = 10^3 \text{ M} \end{aligned}$$

Therefore $[\text{H}^+]$ increases 1000 times

27. b.

Explanation:

Weakest acids has lowest ΔH_N because it absorbs more of heat of ionisation.

33. a.

Explanation:

$$- 2.303 RT \log K_p = -nFE^\circ$$

$$E^\circ = (2.303 RT / nF) \times 2$$

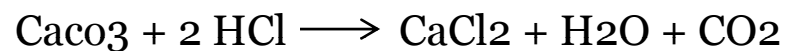
$$= (0.059 / 2) \times 2$$

$$= 0.059$$

46. d.

Explanation:

$$2 \times 36.5 \text{ g}$$



$$100 \text{ g}$$

$$100 \text{ g CaCO}_3 \longrightarrow 2 \times 36.5$$

$$10 \text{ g} \longrightarrow 2 \times 36.5 \times 10 / 100$$

$$= 7.3 \text{ g}$$

47. b .

Explanation:

$$a - \frac{1}{2} a \rightarrow \frac{1}{4} a$$

51. a.

Explanation:

Larger the K value farther the reaction go to completion

53. b.

Explanation:

Since Ag is below Cu in electrochemical series.