

## FÍSICA

**21** Letra A.

$$\Delta S = \frac{g \cdot t^2}{2} \rightarrow 45 = 5 \cdot t^2 \therefore t = 3s$$

$$\Delta S = V_0 \cdot t + \frac{g \cdot t^2}{2} \rightarrow 45 = 2 \cdot V_0 + 5 \cdot 2^2 \therefore V_0 = 12,5m/s$$

**22** Letra A.

$$V^2 = V_0^2 + 2 \cdot g \cdot \Delta S \rightarrow 0 = V_0^2 - 2 \cdot 10 \cdot 0,2 \therefore V_0 = 2m/s$$

**23** Letra B.

**24** Letra D.

Subida do Parafuso:  $V^2 = V_0^2 + 2 \cdot g \cdot \Delta S \rightarrow 0 = 5^2 - 2 \cdot 10 \cdot H \therefore H = 1,25m$

$$V = V_0 + g \cdot t \rightarrow 0 = 5 - 10 \cdot t \therefore t = 0,5s$$

Descida do Parafuso:  $\Delta S = V_0 \cdot t + \frac{g \cdot t^2}{2} \rightarrow 100 + 1,25 = 5 \cdot t^2 \therefore t = 4,5s$

$$t_{TOTAL} = 0,5 + 4,5 = 5s$$

**25** Letra E.

I -  $\Delta S = V_0 \cdot t + \frac{g \cdot t^2}{2} = 30 \cdot 1 - 5 \cdot 1^2 = 25m$  - Verdadeiro

II -  $V = V_0 + g \cdot t \rightarrow 0 = 30 - 10 \cdot t \therefore t = 3s$  - Verdadeiro

$$V^2 = V_0^2 + 2 \cdot g \cdot \Delta S \rightarrow 0 = 30^2 - 2 \cdot 10 \cdot H \therefore H = 45m$$

III -  $\Delta S = V_0 \cdot t + \frac{g \cdot t^2}{2} = 5 \cdot (5 - 3)^2 = 20m \rightarrow x = 45 - 20 = 25m$

- Verdadeiro

**26** Letra A.

**27** Letra C.

$$\Delta S = V_0 \cdot t + \frac{g \cdot t^2}{2} \rightarrow 1,8 = 5 \cdot t^2 \therefore t = 0,6s$$

$$\left. \begin{array}{l} 4 \text{ pingos} \rightarrow 1s \\ x \rightarrow 0,6s \end{array} \right\} x = 2,4 \text{ pingos} \Rightarrow 2 \text{ pingos}$$

**28** Letra A.

**29** Letra A.

$$V = V_0 + g \cdot t = 10 \cdot 1 = 10m/s$$

$$V^2 = V_0^2 + 2 \cdot g \cdot \Delta S \rightarrow 10^2 = 0^2 + 2 \cdot 10 \cdot H \therefore H = 5m \Rightarrow \Delta S = 5 + 15 = 20m$$

**30** Letra A.

$$\Delta S = V_0 \cdot t + \frac{g \cdot t^2}{2} \rightarrow 1,25 = 5 \cdot t^2 \therefore t = 0,5s \Rightarrow t_{TOTAL} = 1s$$

**31** Letra E.

$$P_0 \cdot V_0 = P_F \cdot V_F \rightarrow \frac{V_F}{V_0} = \frac{P_{ATM} + P_{ÁGUA}}{P_{ATM}} = \frac{10^5 + 10^3 \cdot 10 \cdot 5}{10^5} = 1,5 \Rightarrow 50\%$$

**32** Letra D.

**33** Letra C.

$$\frac{P_0}{T_0} = \frac{P_F}{T_F} \rightarrow \frac{P_F}{P_0} = \frac{327}{300} = 1,09 \Rightarrow 9\%$$

**34** Letra E.

$$\frac{V_0}{T_0} = \frac{V_F}{T_F} \rightarrow \frac{V_0}{423} = \frac{2 \cdot V_0}{T_F} \therefore T_F = 846K = 573^\circ C$$

**35** Letra D.

$$\frac{V_0}{T_0} = \frac{V_F}{T_F} \rightarrow \frac{V_0}{300} = \frac{2 \cdot V_0}{T_F} \therefore T_F = 600\text{K}$$

$$P_0 \cdot V_0 = P_F \cdot V_F \rightarrow 4 \cdot 2 \cdot V_0 = P_F \cdot V_0 \therefore P_F = 8\text{atm}$$

**36** Letra A.

$$U_0 \rightarrow T_0 \Rightarrow U_F = 2 \cdot U_0 \therefore T_F = 2 \cdot T_0 = 546\text{K}$$

**37** Letra E.

$$\frac{P_0}{T_0} = \frac{P_F}{T_F} \rightarrow \frac{1}{293} = \frac{2}{T_F} \Rightarrow T_F = 586\text{K} = 313^\circ\text{C}$$

**38** Letra C.

$$\frac{P_0}{T_0} = \frac{P_F}{T_F} \rightarrow \frac{1,7 \cdot 10^5}{290} = \frac{P_F}{310} \Rightarrow P_F \approx 1,8 \cdot 10^5 \text{N/m}^2$$

**39** Letra A.

$$\frac{P_0}{T_0} = \frac{P_F}{T_F} \rightarrow \frac{0,8}{300} = \frac{P_F}{330} \Rightarrow P_F = 0,88\text{atm}$$

**40** Letra C.

$$\frac{P_0 \cdot V_0}{T_0} = \frac{P_F \cdot V_F}{T_F} \rightarrow \frac{2 \cdot 0,9}{300} = \frac{1,5 \cdot V_F}{400} \Rightarrow V_F = 1,6 \text{ litro}$$