

Question #65818, Chemistry / Physical Chemistry

Question 17 : Which of the following is not a state function?

free energy

entropy

work

enthalpy

Question 18 : 1. 43.4 kcal of heat is required to decompose 2 mole of mercury(II) oxide according to the equation

$2\text{HgO (s)} \rightarrow 2\text{Hg (l)} + \text{O}_2 \text{ (g)}$. What quantity of energy is required to decompose 10.8 g of HgO? (Hg = 200.59, O = 16)

2.17 kcal

1.09 kcal

468.72 kJ

0.545 kJ

Answer :

Question 17 : Which of the following is not a state function?

work

Question 18 : 1. 43.4 kcal of heat is required to decompose 2 mole of mercury(II) oxide according to the equation

$2\text{HgO (s)} \rightarrow 2\text{Hg (l)} + \text{O}_2 \text{ (g)}$. What quantity of energy is required to decompose 10.8 g of HgO? (Hg = 200.59, O = 16)

1.09 kcal

Solution:

$$m(\text{HgO}) = 200.59 + 16 = 216.59 \frac{\text{g}}{\text{mol}}$$
$$n(\text{HgO}) = \frac{10.8 \text{ g}}{216.59 \frac{\text{g}}{\text{mol}}} = 0.04986 \text{ mol}$$
$$Q = 0.04986 \text{ mol} \times \frac{43.4 \text{ kcal}}{2 \text{ mol}} = \mathbf{1.09 \text{ kcal}}$$