ATOMIC ENERGY CENTRAL SCHOOL-KUDANKULAM

Worksheet –Module-2/5

Subject-Chemistry   **Class-XI**

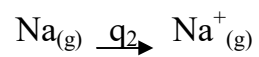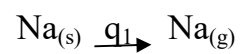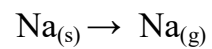**Lesson No.-Unit-6 (Thermodynamics)**

Name of the topic-WORK, HEAT FIRST LAW OF THERMODYNAMICS

1. Gas expands by 0.5 L against an external pressure of 1 atm. Calculate the work done.

2. 2.5 mol of ideal gas at 2 atm and 270c expands isothermally to 2.5 times of its original volume against the external pressure of atm calculate work done. If the same gas isothermally in a reversible manner then what will be the value of work.

3. For the same increase in volume why work done is more if the gas is allowed to expand reversibly at higher temperature?

4. Assuming ideal behaviour calculate the work done when 1.6 mol of water evaporates at 373 K against the atmospheric pressure of 1 atm.

5. What is the work done on the gas when $10m^3$ of it is compressed to $5m^3$ under a constant pressure of 10^3 kPa?

6. In a process 701 J of heat is absorbed by a system and 394 J of work is done by the system. What is the change in internal energy for the process?

7. Consider a two mole sample of an ideal diatomic gas undergoing reversible isothermal expansion at 298 K from 1 atm and 49.6 litres to 0.66 atm and 75 litres. Determine the work done.

8. If W= -20KJ. What does the negative sign indicate?

9. What is the work done when an ideal gas expands in vacuum?

10. What is the change in internal energy when

$$Na_{(s)} \rightarrow Na_{(g)}$$

$$Na_{(s)} \xrightarrow{q_1} Na_{(g)}$$

$$Na_{(g)} \xrightarrow{q_2} Na^+_{(g)}$$

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