

21 The first law of thermodynamics may be expressed as shown.

$$\Delta U = q + w$$

where ΔU is the change in internal energy,

q is the heating of the system,

w is the work done on the system.

A fixed mass of ideal gas at high pressure is contained in a balloon. The balloon suddenly bursts, causing the gas to expand and cool.

In this situation, which row describes the values of ΔU , q and w ?

	ΔU	q	w
A	negative	negative	positive
B	negative	zero	negative
C	positive	zero	negative
D	positive	negative	positive

22 A tuning fork is made to vibrate above a tube filled with water. The water is allowed to run out of