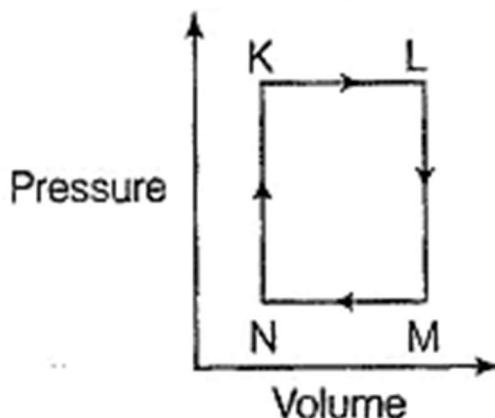


Q. passage question:

A fixed mass m of a gas is subjected to transformation of states from K to L to M to N and again back to K as shown in the figure below. (JEE Adv,2013)



1. The pair of isochoric processes among the transformation of states are:
 - a. K to L and L to M
 - b. L to M and N to K
 - c. L to M and M to N
 - d. M to N and N to K

Solution:

- b. L to M and N to K

Explanation:

Isochoric process: constant volume process.

2. The succeeding operations that enable this transformation of states are:
 - a. heating, cooling, heating, cooling
 - b. cooling, heating, cooling, heating
 - c. heating, cooling, cooling, heating
 - d. cooling, heating, heating, cooling

solution:

- c. heating, cooling, cooling, heating

Explanation:

At constant pressure, if volume is increased, the temperature of the system would also increase. Hence, heating occurs. Similarly, if pressure is increased at constant volume, temperature would increase and will be a heating process.