What is the amount of heat required to raise the temperature of 2 moles of mono atomic gas under isobaric condition form 0 to 100 degree centigrade?

Solution:

We have $v = 2$ mol $\triangle T = 100\ K$
Need to find Q.

Let Q – the heat required to raise temperature from 273K to 373 K
A – work which makes gas
$\triangle U$ - increase in the internal energy of the gas

So $\quad Q = A + \triangle U$

In isobaric variant we have : $A = p\ \triangle V = v\ R\ \triangle T$
for mono atomic gas -> $\triangle U = \frac{3}{2} vR\ \triangle T$

So $Q = v\ R\ \triangle T + \frac{3}{2} vR\ \triangle T = \frac{5}{2} vR\ \triangle T = \frac{5}{2} * 2 * 8.31 * 100 = 4155\ J$

Answer: 4155 J