

15 Which force is caused only by a pressure difference?

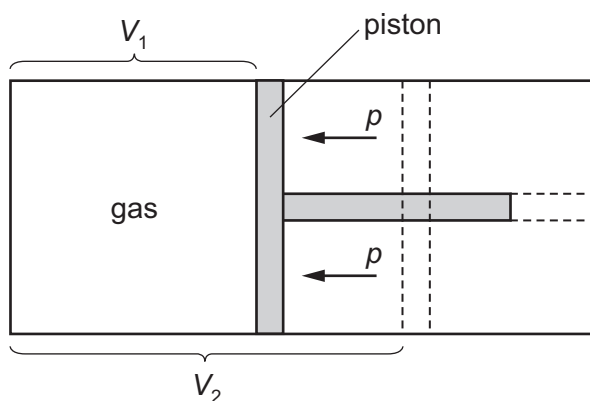
- A friction
- B upthrust
- C viscous force
- D weight

16 The total energy input  $E_{\text{in}}$  in a process is partly transferred to useful energy output  $U$  and partly transferred to energy that is wasted  $W$ .

What is the efficiency of the process?

- A  $\frac{U}{E_{\text{in}}} \times 100\%$
- B  $\frac{W}{E_{\text{in}}} \times 100\%$
- C  $\frac{U}{W} \times 100\%$
- D  $\frac{U+W}{E_{\text{in}}} \times 100\%$

17 A gas is enclosed inside a cylinder which is fitted with a frictionless piston.



Initially, the gas has a volume  $V_1$  and is in equilibrium with the external pressure  $p$ . The gas is then heated slowly so that it expands at constant pressure, pushing the piston back until the volume of the gas has increased to  $V_2$ .

How much work is done by the gas during this expansion?

- A  $p(V_2 - V_1)$
- B  $\frac{1}{2}p(V_2 - V_1)$
- C  $p(V_2 + V_1)$
- D  $\frac{1}{2}p(V_2 + V_1)$