

QUES 03:-

An ideal gas at atmospheric pressure is adiabatically compressed so that its density becomes 32 times of its initial value. If the final pressure of gas is 128 atmospheres, the value of ' γ ' of the gas is :

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- (a) 1.5 (b) 1.4 (c) 1.3 (d) 1.6

(b) Volume of the gas

$$v = \frac{m}{d} \text{ and}$$

Using $PV^\gamma = \text{constant}$

$$\frac{P'}{P} = \frac{V}{V'} = \left(\frac{d'}{d}\right)^\gamma$$

$$\text{or } 128 = (32)^\gamma$$

$$\therefore \gamma = \frac{7}{5} = 1.4$$